# Updated Mortality Improvement Rates and Static Mortality Tables for Defined Benefit Pension Plans for 2020

Notice 2019-26

## PURPOSE

This notice specifies updated mortality improvement rates and static mortality tables to be used for defined benefit pension plans under § 430(h)(3)(A) of the Internal Revenue Code (Code) and section 303(h)(3)(A) of the Employee Retirement Income Security Act of 1974, Pub. L. No. 93-406, as amended (ERISA). These updated mortality improvement rates and static tables, which are being issued pursuant to the regulations under § 430(h)(3)(A), apply for purposes of calculating the funding target and other items for valuation dates occurring during the 2020 calendar year.

This notice also includes a modified unisex version of the mortality tables for use in determining minimum present value under § 417(e)(3) of the Code and section 205(g)(3) of ERISA for distributions with annuity starting dates that occur during stability periods beginning in the 2020 calendar year.

## BACKGROUND

Section 412 of the Code provides minimum funding requirements that generally apply for defined benefit plans. Section 412(a)(2) provides that § 430 specifies the minimum funding requirements that generally apply to defined benefit plans that are not multiemployer plans. Section 430(a) defines the minimum required contribution for such a plan by reference to the plan's funding target for the plan year. Under § 430(d)(1), a plan's funding target for a plan year generally is the present value of all benefits accrued or earned under the plan as of the first day of that plan year.

Section 430(h)(3) provides rules regarding the mortality tables that generally are used under § 430. Under § 430(h)(3)(A), except as provided in § 430(h)(3)(C) or (D), the Secretary is to prescribe by regulation mortality tables to be used in determining any present value or making any computation under § 430. Those tables are to be based on the actual experience of pension plans and projected trends in that experience. Section 430(h)(3)(B) requires the Secretary to revise any table in effect under § 430(h)(3)(A) at least every 10 years to reflect the actual experience of pension plans and projected trends in that experience.

Section 430(h)(3)(C) provides that, upon request by a plan sponsor and approval by the Secretary, substitute mortality tables that meet the applicable requirements may be used in lieu of the standard mortality tables provided under § 430(h)(3)(A). Section 430(h)(3)(D) provides for the use of separate mortality

tables with respect to certain individuals who are entitled to benefits on account of disability.

***Mortality Tables for Purposes of § 430***

Section 1.430(h)(3)-1 provides rules regarding the mortality tables used under § 430(h)(3)(A) for plan years beginning on or after January 1, 2018. The mortality tables used under § 430(h)(3)(A) are based on the tables in the RP-2014 Mortality Tables Report,[1] adjusted for mortality improvement. Section 1.430(h)(3)-1(d) sets forth base mortality tables with a base year of 2006.

Section 1.430(h)(3)-1(a) permits plan sponsors to apply the projection of mortality improvement in either of two ways: through use of static tables that are updated annually to reflect expected improvements in mortality, or through use of generational tables. Section 1.430(h)(3)-1(a)(2)(i)(C) provides that, for valuation dates occurring in years after 2018, updated mortality improvement rates that take into account new data for mortality improvement trends of the general population, along with static mortality tables that reflect those updated mortality improvement rates, will be provided through guidance published in the Internal Revenue Bulletin. Notice 2018-2, 2018-2 I.R.B. 281, provides mortality improvement rates and static mortality tables that apply for valuation dates occurring during 2019.

Section 1.430(h)(3)-2 provides rules for the use of substitute mortality tables that are based on the mortality experience of the plan. Pursuant to § 1.430(h)(3)-2(c)(3)(ii), substitute mortality tables are developed using the mortality improvement rates used under § 1.430(h)(3)-1.

***Application of These Tables for Other Funding Rules***

Section 1.431(c)(6)-1 provides that the same mortality assumptions that apply for purposes of § 430(h)(3)(A) and § 1.430(h)(3)-1(a)(2) are used to determine a multiemployer plan's current liability for purposes of applying the full-funding rules of § 431(c)(6). For this purpose, a multiemployer plan may apply either the static mortality tables or the generational mortality tables (as updated pursuant to §1.430(h)(3)-1(a)(2)(i)(C) and (a)(3)).

Section 433 provides the minimum funding standards for CSEC plans, which are described in § 414(y). Section 433(h)(3)(B)(i) provides that the Secretary may by regulation prescribe mortality tables to be used in determining current liability for purposes of § 433(c)(7)(C). Section 1.433(h)(3)-1(a) provides that the mortality tables described in § 430(h)(3)(A) are to be used to determine current liability under § 433(c)(7)(C).

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[1] The RP-2014 Mortality Tables Report, as revised November 2014, is available at https://www.soa.org/Files/Research/Exp-Study/research-2014-rp-report.pdf.

***Application of Mortality Tables for Minimum Present Value Requirements under § 417(e)(3)***

Section 417(e)(3) generally provides that the present value of certain accelerated forms of benefit under a qualified pension plan (including single-sum distributions) must not be less than the present value of the accrued benefit using applicable interest rates and the applicable mortality table. Section 417(e)(3)(B) defines the term "applicable mortality table" as the mortality table specified for the plan year under § 430(h)(3)(A) (without regard to § 430(h)(3)(C) or (D)), modified as appropriate by the Secretary.

Rev. Rul. 2007-67, 2007-2 CB 1047, provides that, except as otherwise stated in future guidance, the applicable mortality table under § 417(e)(3) is a static mortality table set forth in published guidance that is developed based on a fixed blend of 50 percent of the static male combined mortality rates and 50 percent of the static female combined mortality rates used under § 1.430(h)(3)-1. Rev. Rul. 2007-67 also provides that the applicable mortality table for a calendar year applies to distributions with annuity starting dates that occur during stability periods that begin during that calendar year.

MORTALITY IMPROVEMENT RATES FOR 2020

The mortality improvement rates for valuation dates occurring during 2020 are the mortality improvement rates in the Mortality Improvement Scale MP-2018 Report (issued by the Retirement Plans Experience Committee (RPEC) of the Society of Actuaries and available at https://www.soa.org/Files/resources/experience-studies/2018/mortality-improvement-scale-mp-2018.pdf).

STATIC MORTALITY TABLES FOR 2020

The static mortality tables that apply under § 430(h)(3)(A) for valuation dates occurring during 2020 are set forth in the appendix to this notice. The mortality rates in these tables have been developed from the methodology and base mortality rates set forth in § 1.430(h)(3)-1(c) and (d) using the mortality improvement rates specified in the previous section of this notice.

The static mortality table that applies under § 417(e)(3) for distributions with annuity starting dates occurring during stability periods beginning in 2020 is set forth in the appendix to this notice in the column labeled "Unisex." The mortality rates in this table are derived from the mortality tables specified under § 430(h)(3)(A) for 2020 in accordance with the procedures set forth in Rev. Rul. 2007-67.

COMMENTS REQUESTED

In section 4 of the Mortality Improvement Scale MP-2018 Report, RPEC discusses an alternative model for developing mortality improvement rates from historical U.S. population mortality rates. The alternative model is identical to the current model except that a different approach is used to graduate (that is, smooth) the historical mortality rates. In particular, the finite difference operators used in the smoothness components of the Whittaker-Henderson objective function are of order 2, rather than order 3. RPEC's back-testing of the alternative model showed improved stability of mortality improvement rates from year to year; however, the alternative approach did not generate as tight of a fit of the graduated mortality improvement rates to the ungraduated historical mortality improvement rates. The Department of the Treasury (Treasury Department) and the Internal Revenue Service (IRS) request comments about whether or not to use this alternative model to determine the mortality improvement rates that apply under § 430(h)(3)(A) for future years.

Additionally, in the preamble to § 1.430(h)(3)-1, the Treasury Department and the IRS stated that the mortality improvement rates used under § 1.430(h)(3)-1 may not be updated for a year if changes to the mortality improvement rates for the year would be minimal. The Treasury Department and the IRS request comments about whether future updates to the mortality improvement rates used under § 1.430(h)(3)-1 should be delayed until the cumulative changes to expected mortality improvement rates reach a particular magnitude. Commenters requesting that changes to mortality improvement rates be made less frequently than annually should specify how the magnitude of cumulative changes should be measured and what level of cumulative changes should support an update of mortality improvement rates.

**Drafting Information**

The principal authors of this notice are Arslan Malik and Linda S. F. Marshall of the Office of the Associate Chief Counsel (Employee Benefits, Exempt Organizations, and Employment Taxes). For further information regarding this notice, contact Arslan Malik or Linda Marshall at (202) 317-6700 (not a toll-free number).

# APPENDIX

## Mortality Tables for 2020

## Valuation Dates Occurring During 2020 and Distributions Subject to § 417(e)(3) with Annuity Starting Dates During Stability Periods Beginning in 2020

| | | Male | Male | Male | | Female | Female | Female | | Unisex |
|---|---|---|---|---|---|---|---|---|---|---|
| Age | | 2020 Non-Annuitant Table | 2020 Annuitant Table | 2020 Optional Combined Table for Small Plans | | 2020 Non-Annuitant Table | 2020 Annuitant Table | 2020 Optional Combined Table for Small Plans | | 2020 Table for Distributions Subject to § 417(e)(3) |
| 0 | | 0.003251 | 0.003251 | 0.003251 | | 0.002883 | 0.002883 | 0.002883 | | 0.003067 |
| 1 | | 0.000191 | 0.000191 | 0.000191 | | 0.000180 | 0.000180 | 0.000180 | | 0.000186 |
| 2 | | 0.000130 | 0.000130 | 0.000130 | | 0.000119 | 0.000119 | 0.000119 | | 0.000125 |
| 3 | | 0.000109 | 0.000109 | 0.000109 | | 0.000090 | 0.000090 | 0.000090 | | 0.000100 |
| 4 | | 0.000086 | 0.000086 | 0.000086 | | 0.000068 | 0.000068 | 0.000068 | | 0.000077 |
| 5 | | 0.000076 | 0.000076 | 0.000076 | | 0.000062 | 0.000062 | 0.000062 | | 0.000069 |
| 6 | | 0.000069 | 0.000069 | 0.000069 | | 0.000058 | 0.000058 | 0.000058 | | 0.000064 |
| 7 | | 0.000061 | 0.000061 | 0.000061 | | 0.000054 | 0.000054 | 0.000054 | | 0.000058 |
| 8 | | 0.000052 | 0.000052 | 0.000052 | | 0.000050 | 0.000050 | 0.000050 | | 0.000051 |
| 9 | | 0.000043 | 0.000043 | 0.000043 | | 0.000047 | 0.000047 | 0.000047 | | 0.000045 |
| 10 | | 0.000036 | 0.000036 | 0.000036 | | 0.000045 | 0.000045 | 0.000045 | | 0.000041 |
| 11 | | 0.000039 | 0.000039 | 0.000039 | | 0.000046 | 0.000046 | 0.000046 | | 0.000043 |
| 12 | | 0.000059 | 0.000059 | 0.000059 | | 0.000054 | 0.000054 | 0.000054 | | 0.000057 |
| 13 | | 0.000078 | 0.000078 | 0.000078 | | 0.000062 | 0.000062 | 0.000062 | | 0.000070 |
| 14 | | 0.000097 | 0.000097 | 0.000097 | | 0.000069 | 0.000069 | 0.000069 | | 0.000083 |
| 15 | | 0.000117 | 0.000117 | 0.000117 | | 0.000076 | 0.000076 | 0.000076 | | 0.000097 |
| 16 | | 0.000137 | 0.000137 | 0.000137 | | 0.000082 | 0.000082 | 0.000082 | | 0.000110 |
| 17 | | 0.000158 | 0.000158 | 0.000158 | | 0.000088 | 0.000088 | 0.000088 | | 0.000123 |
| 18 | | 0.000181 | 0.000181 | 0.000181 | | 0.000093 | 0.000093 | 0.000093 | | 0.000137 |
| 19 | | 0.000205 | 0.000205 | 0.000205 | | 0.000097 | 0.000097 | 0.000097 | | 0.000151 |
| 20 | | 0.000228 | 0.000228 | 0.000228 | | 0.000098 | 0.000098 | 0.000098 | | 0.000163 |
| 21 | | 0.000259 | 0.000259 | 0.000259 | | 0.000101 | 0.000101 | 0.000101 | | 0.000180 |
| 22 | | 0.000289 | 0.000289 | 0.000289 | | 0.000103 | 0.000103 | 0.000103 | | 0.000196 |
| 23 | | 0.000311 | 0.000311 | 0.000311 | | 0.000107 | 0.000107 | 0.000107 | | 0.000209 |
| 24 | | 0.000325 | 0.000325 | 0.000325 | | 0.000112 | 0.000112 | 0.000112 | | 0.000219 |
| 25 | | 0.000315 | 0.000315 | 0.000315 | | 0.000116 | 0.000116 | 0.000116 | | 0.000216 |

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|---|---|---|---|---|---|---|---|---|---|---|
| 26 | | 0.000310 | 0.000310 | 0.000310 | | 0.000121 | 0.000121 | 0.000121 | | 0.000216 |
| 27 | | 0.000311 | 0.000311 | 0.000311 | | 0.000127 | 0.000127 | 0.000127 | | 0.000219 |
| 28 | | 0.000318 | 0.000318 | 0.000318 | | 0.000134 | 0.000134 | 0.000134 | | 0.000226 |
| 29 | | 0.000330 | 0.000330 | 0.000330 | | 0.000143 | 0.000143 | 0.000143 | | 0.000237 |
| 30 | | 0.000345 | 0.000345 | 0.000345 | | 0.000154 | 0.000154 | 0.000154 | | 0.000250 |
| 31 | | 0.000364 | 0.000364 | 0.000364 | | 0.000167 | 0.000167 | 0.000167 | | 0.000266 |
| 32 | | 0.000385 | 0.000385 | 0.000385 | | 0.000182 | 0.000182 | 0.000182 | | 0.000284 |
| 33 | | 0.000407 | 0.000407 | 0.000407 | | 0.000198 | 0.000198 | 0.000198 | | 0.000303 |
| 34 | | 0.000426 | 0.000426 | 0.000426 | | 0.000215 | 0.000215 | 0.000215 | | 0.000321 |
| 35 | | 0.000444 | 0.000444 | 0.000444 | | 0.000231 | 0.000231 | 0.000231 | | 0.000338 |
| 36 | | 0.000459 | 0.000459 | 0.000459 | | 0.000246 | 0.000246 | 0.000246 | | 0.000353 |
| 37 | | 0.000475 | 0.000475 | 0.000475 | | 0.000265 | 0.000265 | 0.000265 | | 0.000370 |
| 38 | | 0.000492 | 0.000492 | 0.000492 | | 0.000284 | 0.000284 | 0.000284 | | 0.000388 |
| 39 | | 0.000513 | 0.000513 | 0.000513 | | 0.000305 | 0.000305 | 0.000305 | | 0.000409 |
| 40 | | 0.000538 | 0.000538 | 0.000538 | | 0.000327 | 0.000327 | 0.000327 | | 0.000433 |
| 41 | | 0.000566 | 0.000572 | 0.000566 | | 0.000351 | 0.000349 | 0.000351 | | 0.000459 |
| 42 | | 0.000600 | 0.000653 | 0.000600 | | 0.000378 | 0.000400 | 0.000378 | | 0.000489 |
| 43 | | 0.000644 | 0.000779 | 0.000646 | | 0.000410 | 0.000479 | 0.000410 | | 0.000528 |
| 44 | | 0.000697 | 0.000948 | 0.000702 | | 0.000445 | 0.000587 | 0.000445 | | 0.000574 |
| 45 | | 0.000760 | 0.001162 | 0.000769 | | 0.000485 | 0.000724 | 0.000487 | | 0.000628 |
| 46 | | 0.000834 | 0.001421 | 0.000850 | | 0.000532 | 0.000892 | 0.000538 | | 0.000694 |
| 47 | | 0.000919 | 0.001728 | 0.000945 | | 0.000585 | 0.001096 | 0.000598 | | 0.000772 |
| 48 | | 0.001015 | 0.002089 | 0.001054 | | 0.000643 | 0.001340 | 0.000666 | | 0.000860 |
| 49 | | 0.001123 | 0.002511 | 0.001179 | | 0.000707 | 0.001627 | 0.000746 | | 0.000963 |
| 50 | | 0.001244 | 0.003000 | 0.001324 | | 0.000780 | 0.001960 | 0.000839 | | 0.001082 |
| 51 | | 0.001380 | 0.003233 | 0.001472 | | 0.000862 | 0.002077 | 0.000933 | | 0.001203 |
| 52 | | 0.001534 | 0.003486 | 0.001668 | | 0.000955 | 0.002220 | 0.001049 | | 0.001359 |
| 53 | | 0.001695 | 0.003733 | 0.001889 | | 0.001060 | 0.002393 | 0.001186 | | 0.001538 |
| 54 | | 0.001876 | 0.003997 | 0.002149 | | 0.001178 | 0.002595 | 0.001346 | | 0.001748 |
| 55 | | 0.002082 | 0.004282 | 0.002537 | | 0.001307 | 0.002830 | 0.001596 | | 0.002067 |
| 56 | | 0.002322 | 0.004598 | 0.003044 | | 0.001449 | 0.003096 | 0.001920 | | 0.002482 |
| 57 | | 0.002605 | 0.004953 | 0.003493 | | 0.001602 | 0.003398 | 0.002213 | | 0.002853 |
| 58 | | 0.002941 | 0.005351 | 0.004002 | | 0.001764 | 0.003732 | 0.002527 | | 0.003265 |
| 59 | | 0.003337 | 0.005798 | 0.004564 | | 0.001936 | 0.004100 | 0.002880 | | 0.003722 |
| 60 | | 0.003799 | 0.006297 | 0.005206 | | 0.002117 | 0.004500 | 0.003298 | | 0.004252 |
| 61 | | 0.004335 | 0.006852 | 0.005930 | | 0.002309 | 0.004933 | 0.003832 | | 0.004881 |
| 62 | | 0.004946 | 0.007463 | 0.006734 | | 0.002511 | 0.005398 | 0.004416 | | 0.005575 |
| 63 | | 0.005631 | 0.008127 | 0.007603 | | 0.002730 | 0.005897 | 0.005112 | | 0.006358 |
| 64 | | 0.006400 | 0.008857 | 0.008453 | | 0.002967 | 0.006437 | 0.005758 | | 0.007106 |
| 65 | | 0.007255 | 0.009653 | 0.009373 | | 0.003225 | 0.007022 | 0.006472 | | 0.007923 |
| 66 | | 0.008103 | 0.010523 | 0.010359 | | 0.003578 | 0.007672 | 0.007311 | | 0.008835 |

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|---|---|---|---|---|---|---|---|---|---|---|
| 67 | | 0.009031 | 0.011481 | 0.011361 | | 0.003970 | 0.008397 | 0.008117 | | 0.009739 |
| 68 | | 0.010052 | 0.012541 | 0.012451 | | 0.004414 | 0.009214 | 0.008985 | | 0.010718 |
| 69 | | 0.011189 | 0.013736 | 0.013663 | | 0.004913 | 0.010133 | 0.009938 | | 0.011801 |
| 70 | | 0.012455 | 0.015076 | 0.015008 | | 0.005479 | 0.011174 | 0.010981 | | 0.012995 |
| 71 | | 0.013866 | 0.016580 | 0.016516 | | 0.006118 | 0.012348 | 0.012158 | | 0.014337 |
| 72 | | 0.015449 | 0.018278 | 0.018219 | | 0.006842 | 0.013674 | 0.013489 | | 0.015854 |
| 73 | | 0.017224 | 0.020197 | 0.020143 | | 0.007667 | 0.015175 | 0.014997 | | 0.017570 |
| 74 | | 0.019218 | 0.022366 | 0.022317 | | 0.008599 | 0.016865 | 0.016697 | | 0.019507 |
| 75 | | 0.021460 | 0.024826 | 0.024782 | | 0.009664 | 0.018790 | 0.018635 | | 0.021709 |
| 76 | | 0.023964 | 0.027604 | 0.027566 | | 0.010871 | 0.020973 | 0.020836 | | 0.024201 |
| 77 | | 0.026782 | 0.030769 | 0.030738 | | 0.012254 | 0.023481 | 0.023366 | | 0.027052 |
| 78 | | 0.029919 | 0.034345 | 0.034322 | | 0.013828 | 0.026356 | 0.026271 | | 0.030297 |
| 79 | | 0.033447 | 0.038433 | 0.038420 | | 0.015621 | 0.029666 | 0.029618 | | 0.034019 |
| 80 | | 0.037375 | 0.043067 | 0.043067 | | 0.017662 | 0.033484 | 0.033484 | | 0.038276 |
| 81 | | 0.039222 | 0.048107 | 0.048107 | | 0.019406 | 0.037669 | 0.037669 | | 0.042888 |
| 82 | | 0.042758 | 0.053854 | 0.053854 | | 0.022765 | 0.042446 | 0.042446 | | 0.048150 |
| 83 | | 0.048014 | 0.060386 | 0.060386 | | 0.027776 | 0.047923 | 0.047923 | | 0.054155 |
| 84 | | 0.055042 | 0.067838 | 0.067838 | | 0.034475 | 0.054174 | 0.054174 | | 0.061006 |
| 85 | | 0.063877 | 0.076254 | 0.076254 | | 0.042895 | 0.061258 | 0.061258 | | 0.068756 |
| 86 | | 0.074636 | 0.085831 | 0.085831 | | 0.053064 | 0.069265 | 0.069265 | | 0.077548 |
| 87 | | 0.087303 | 0.096623 | 0.096623 | | 0.065024 | 0.078287 | 0.078287 | | 0.087455 |
| 88 | | 0.101920 | 0.108696 | 0.108696 | | 0.078818 | 0.088357 | 0.088357 | | 0.098527 |
| 89 | | 0.118510 | 0.122153 | 0.122153 | | 0.094441 | 0.099512 | 0.099512 | | 0.110833 |
| 90 | | 0.137096 | 0.137096 | 0.137096 | | 0.111838 | 0.111838 | 0.111838 | | 0.124467 |
| 91 | | 0.152921 | 0.152921 | 0.152921 | | 0.125228 | 0.125228 | 0.125228 | | 0.139075 |
| 92 | | 0.169221 | 0.169221 | 0.169221 | | 0.139416 | 0.139416 | 0.139416 | | 0.154319 |
| 93 | | 0.185598 | 0.185598 | 0.185598 | | 0.154186 | 0.154186 | 0.154186 | | 0.169892 |
| 94 | | 0.202075 | 0.202075 | 0.202075 | | 0.169467 | 0.169467 | 0.169467 | | 0.185771 |
| 95 | | 0.218344 | 0.218344 | 0.218344 | | 0.185284 | 0.185284 | 0.185284 | | 0.201814 |
| 96 | | 0.236813 | 0.236813 | 0.236813 | | 0.202710 | 0.202710 | 0.202710 | | 0.219762 |
| 97 | | 0.255790 | 0.255790 | 0.255790 | | 0.220973 | 0.220973 | 0.220973 | | 0.238382 |
| 98 | | 0.275485 | 0.275485 | 0.275485 | | 0.239976 | 0.239976 | 0.239976 | | 0.257731 |
| 99 | | 0.295730 | 0.295730 | 0.295730 | | 0.259633 | 0.259633 | 0.259633 | | 0.277682 |
| 100 | | 0.316409 | 0.316409 | 0.316409 | | 0.279942 | 0.279942 | 0.279942 | | 0.298176 |
| 101 | | 0.337278 | 0.337278 | 0.337278 | | 0.300567 | 0.300567 | 0.300567 | | 0.318923 |
| 102 | | 0.357950 | 0.357950 | 0.357950 | | 0.321243 | 0.321243 | 0.321243 | | 0.339597 |
| 103 | | 0.378379 | 0.378379 | 0.378379 | | 0.341842 | 0.341842 | 0.341842 | | 0.360111 |
| 104 | | 0.398131 | 0.398131 | 0.398131 | | 0.362350 | 0.362350 | 0.362350 | | 0.380241 |
| 105 | | 0.416748 | 0.416748 | 0.416748 | | 0.382270 | 0.382270 | 0.382270 | | 0.399509 |
| 106 | | 0.434806 | 0.434806 | 0.434806 | | 0.401814 | 0.401814 | 0.401814 | | 0.418310 |
| 107 | | 0.451779 | 0.451779 | 0.451779 | | 0.420312 | 0.420312 | 0.420312 | | 0.436046 |

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|---|---|---|---|---|---|---|---|---|---|---|
| 108 | | 0.467748 | 0.467748 | 0.467748 | | 0.437663 | 0.437663 | 0.437663 | | 0.452706 |
| 109 | | 0.482853 | 0.482853 | 0.482853 | | 0.454199 | 0.454199 | 0.454199 | | 0.468526 |
| 110 | | 0.496822 | 0.496822 | 0.496822 | | 0.469667 | 0.469667 | 0.469667 | | 0.483245 |
| 111 | | 0.501965 | 0.501965 | 0.501965 | | 0.483967 | 0.483967 | 0.483967 | | 0.492966 |
| 112 | | 0.501458 | 0.501458 | 0.501458 | | 0.497408 | 0.497408 | 0.497408 | | 0.499433 |
| 113 | | 0.501004 | 0.501004 | 0.501004 | | 0.502965 | 0.502965 | 0.502965 | | 0.501985 |
| 114 | | 0.500451 | 0.500451 | 0.500451 | | 0.501253 | 0.501253 | 0.501253 | | 0.500852 |
| 115 | | 0.500000 | 0.500000 | 0.500000 | | 0.500000 | 0.500000 | 0.500000 | | 0.500000 |
| 116 | | 0.500000 | 0.500000 | 0.500000 | | 0.500000 | 0.500000 | 0.500000 | | 0.500000 |
| 117 | | 0.500000 | 0.500000 | 0.500000 | | 0.500000 | 0.500000 | 0.500000 | | 0.500000 |
| 118 | | 0.500000 | 0.500000 | 0.500000 | | 0.500000 | 0.500000 | 0.500000 | | 0.500000 |
| 119 | | 0.500000 | 0.500000 | 0.500000 | | 0.500000 | 0.500000 | 0.500000 | | 0.500000 |
| 120 | | 1.000000 | 1.000000 | 1.000000 | | 1.000000 | 1.000000 | 1.000000 | | 1.000000 |