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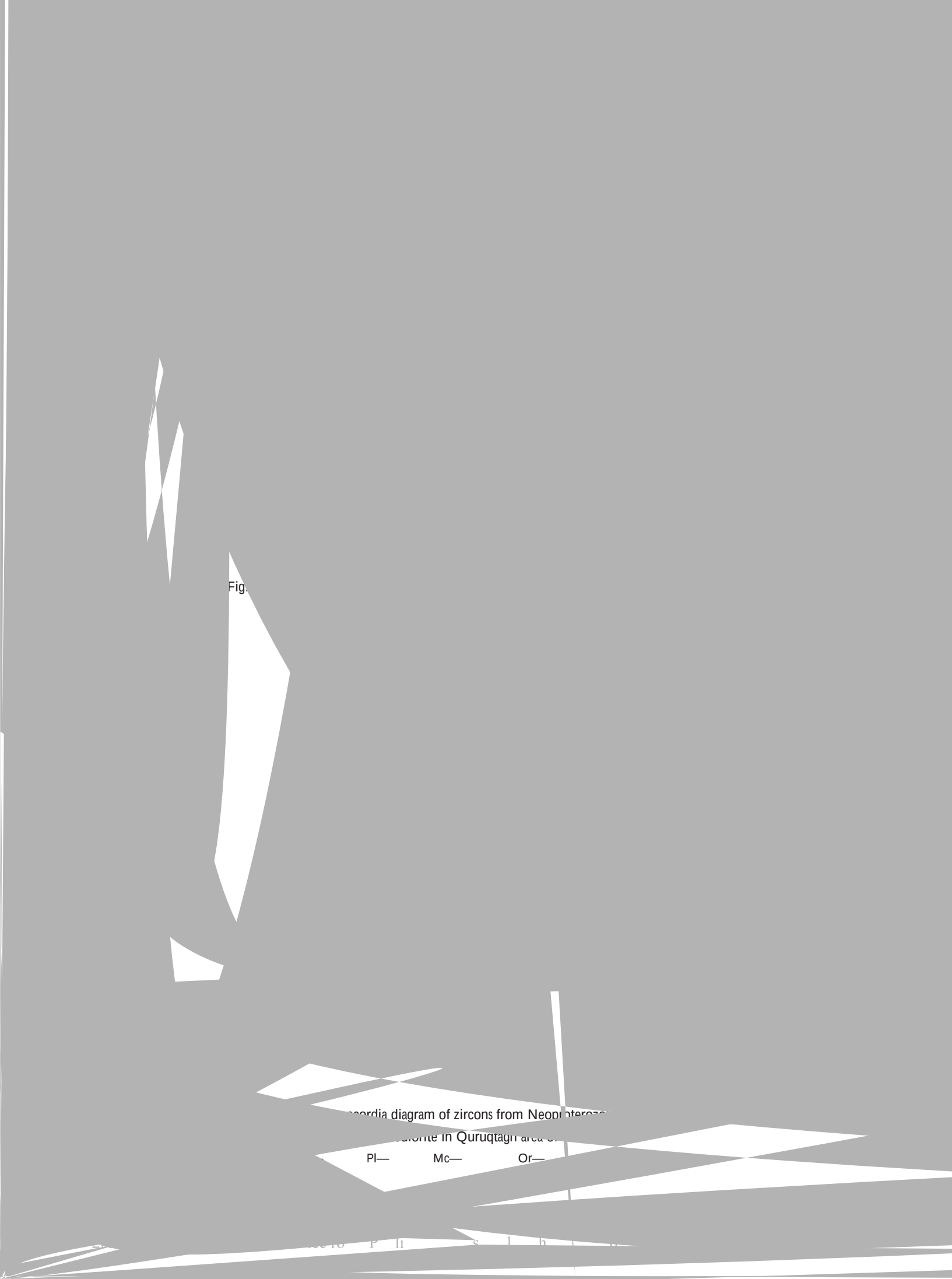


Fig.

cordia diagram of zircons from Neoproterozo

diorite in Quruqtagh area

**1 U−Th−Pb**

**Table 1 U−Th−Pb isotopic data of zircons form Neoproterozoic K−feldspar granite and granodiorite in Quruqtagh area**

| | Th /10$^{-6}$ | U /10$^{-6}$ | Th/U | $^{206}Pb/^{238}U$ | /% | $^{207}Pb/^{235}U$ | /% | $^{206}Pb/^{238}U$ /Ma | 1 | $^{207}Pb/^{235}U$ /Ma | 1 | $^{207}Pb/^{206}Pb$ /Ma | 1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2009KR015 | | | | | | | | | | | | | |
| 1 | 413 | 427 | 0.97 | 0.1031 | 0.44 | 0.8624 | 1.08 | 632 | 3 | 631 | 7 | 628 | 22 |
| 2 | 331 | 418 | 0.79 | 0.1016 | 0.43 | 0.8450 | 1.56 | 624 | 3 | 622 | 10 | 615 | 34 |
| 3 | 127 | 219 | 0.58 | 0.1028 | 0.48 | 0.8510 | 1.60 | 631 | 3 | 625 | 10 | 605 | 34 |
| 4 | 355 | 359 | 0.99 | 0.1030 | 0.63 | 0.8714 | 1.38 | 632 | 4 | 636 | 9 | 652 | 29 |
| 5 | 154 | 168 | 0.91 | 0.1029 | 0.70 | 0.8553 | 2.16 | 632 | 4 | 628 | 14 | 612 | 45 |
| 6 | 377 | 386 | 0.98 | 0.1030 | 0.72 | 0.8709 | 1.31 | 632 | 5 | 636 | 8 | 650 | 27 |
| 7 | 312 | 357 | 0.87 | 0.1026 | 0.76 | 0.8689 | 1.41 | 629 | 5 | 635 | 9 | 653 | 28 |
| 8 | 147 | 169 | 0.87 | 0.1025 | 0.82 | 0.8425 | 2.09 | 629 | 5 | 621 | 13 | 588 | 45 |
| 9 | 167 | 193 | 0.87 | 0.1024 | 0.85 | 0.8662 | 2.43 | 628 | 5 | 634 | 15 | 652 | 48 |
| 10 | 198 | 263 | 0.75 | 0.1023 | 0.89 | 0.8635 | 1.49 | 628 | 6 | 632 | 9 | 646 | 30 |
| 11 | 194 | 208 | 0.93 | 0.1028 | 0.66 | 0.8720 | 1.76 | 631 | 4 | 637 | 11 | 657 | 36 |
| 12 | 388 | 416 | 0.93 | 0.1025 | 0.54 | 0.8695 | 1.10 | 629 | 3 | 635 | 7 | 658 | 23 |
| 13 | 289 | 325 | 0.89 | 0.1021 | 0.74 | 0.8646 | 1.28 | 626 | 5 | 633 | 8 | 655 | 27 |
| 14 | 251 | 309 | 0.81 | 0.1024 | 0.76 | 0.8735 | 1.37 | 629 | 5 | 637 | 9 | 669 | 28 |
| 15 | 136 | 194 | 0.70 | 0.1033 | 0.57 | 0.8577 | 1.58 | 634 | 4 | 629 | 10 | 611 | 34 |
| 16 | 320 | 348 | 0.92 | 0.1035 | 0.54 | 0.8729 | 1.11 | 635 | 3 | 637 | 7 | 646 | 23 |
| 17 | 117 | 168 | 0.70 | 0.1032 | 0.56 | 0.8730 | 2.01 | 633 | 4 | 637 | 13 | 651 | |
| 18 | 242 | 303 | 0.80 | 0.1038 | 0.59 | 0.8763 | 1.12 | 636 | 4 | 639 | 7 | | |
| 19 | 304 | 368 | 0.83 | 0.1028 | 0.62 | 0.8721 | 1.18 | 631 | 4 | 637 | | | |
| 20 | 408 | 428 | 0.95 | 0.1030 | 0.49 | 0.8674 | 1.07 | 632 | | | | | |
| 21 | 995 | 1404 | 0.71 | 0.1022 | 0.63 | 0.8704 | 0.92 | | | | | | |
| 22 | 258 | 256 | 1.01 | 0.1019 | 0.56 | 0.8631 | | | | | | | |
| 23 | 272 | 304 | 0.90 | 0.1021 | 0.54 | | | | | | | | |
| 2009KR016 | | | | | | | | | | | | | |
| 1 | 310 | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | |
| 14 | 107 | | | | | | | | | | | | |
| 15 | 287 | | | | | | | | | | | | |
| 16 | 528 | 57 | | | | | | | | | | | |
| 17 | 717 | | | | | | | | | | | | |
| 18 | 392 | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | |
| | | | .04 | 0. | | | | | | | | | |
| | | 2256 | 1.81 | 0.102 | | | | | | | | | |
| | 937 | 989 | 0.95 | 0.0975 | | | | | | | | | |
| 24 | 510 | 494 | 1.03 | 0.1029 | | | | | | | | | |

**2 Hf**

**Table 2 Hf isotopic compositon of Neoproterozoic K−feldspar granite and granodiorite in Quruqtagh area**

| | $^{176}Yb/^{177}Hf$ | $^{176}Lu/^{177}Hf$ | $^{176}Hf/^{177}Hf$ | 2 σ | $^{176}Hf/^{177}Hf_i$ | $\varepsilon_{Hf}(0)$ | $\varepsilon_{Hf}(t)$ | $T_{DM}$/Ma | $T_{DM}^{C}$/Ma | $f_{Lu/Hf}$ |
|---|---|---|---|---|---|---|---|---|---|---|
| 2009KR015 | | | | | | | | | | |
| 1 | 0.0815 | 0.0020 | 0.282228 | 0.000021 | 0.282205 | -19.2 | -6.2 | 1484 | 2509 | -0.94 |
| 2 | 0.0501 | 0.0015 | 0.282277 | 0.000020 | 0.282258 | -17.5 | -4.3 | 1398 | 2340 | -0.95 |
| 3 | 0.0418 | 0.0014 | 0.282220 | 0.000016 | 0.282204 | -19.5 | -6.2 | 1470 | 2511 | -0.96 |
| 4 | 0.0381 | 0.0012 | 0.282238 | 0.000016 | 0.282223 | -18.9 | -5.5 | 1440 | 2450 | -0.96 |
| 5 | 0.0468 | 0.0014 | 0.282247 | 0.000017 | 0.282230 | -18.6 | -5.3 | 1436 | 2430 | -0.96 |
| 6 | 0.0542 | 0.0020 | 0.282223 | 0.000014 | 0.282200 | -19.4 | -6.4 | 1490 | 2524 | -0.94 |
| 7 | 0.0696 | 0.0021 | 0.282213 | 0.000022 | 0.282188 | -19.8 | -6.8 | 1511 | 2561 | -0.94 |
| 8 | 0.0350 | 0.0011 | 0.282235 | 0.000018 | 0.282222 | -19.0 | -5.6 | 1439 | 2454 | -0.97 |
| 9 | 0.0502 | 0.0014 | 0.282230 | 0.000019 | 0.282213 | -19.2 | -5.9 | 1460 | 2484 | -0.96 |
| 10 | 0.0342 | 0.0010 | 0.282259 | 0.000020 | 0.282248 | -18.1 | -4.7 | 1402 | 2374 | -0.97 |
| 11 | 0.0555 | 0.0017 | 0.282279 | 0.000020 | 0.282259 | -17.4 | -4.3 | 1400 | 2337 | -0.95 |
| 12 | 0.0378 | 0.0011 | 0.282253 | 0.000020 | 0.282241 | -18.3 | -4.9 | 1413 | 2396 | -0.97 |
| 13 | 0.0647 | 0.0018 | 0.282205 | 0.000021 | 0.282184 | -20.0 | -6.9 | 1509 | 2574 | -0.95 |
| 14 | 0.0265 | 0.0008 | 0.282218 | 0.000018 | 0.282209 | -19.6 | -6.0 | 1450 | 2494 | -0.98 |
| 15 | 0.0787 | 0.0022 | 0.282275 | 0.000020 | 0.282248 | -17.6 | -4.7 | 1427 | 2372 | -0.93 |
| 16 | 0.0442 | 0.0010 | 0.282268 | 0.000019 | 0.282257 | -17.8 | -4.4 | 1389 | 2345 | -0.97 |
| 17 | 0.0661 | 0.0015 | 0.282180 | 0.000023 | 0.282162 | -20.9 | -7.7 | 1533 | 2643 | -0.95 |
| 18 | 0.0402 | 0.0011 | 0.282240 | 0.000025 | 0.282228 | -18.8 | -5.4 | 1430 | 2436 | -0.97 |
| 19 | 0.0614 | 0.0016 | 0.282229 | 0.000024 | 0.282210 | -19.2 | -6.0 | 1468 | 2492 | -0.95 |
| 20 | 0.0453 | 0.0012 | 0.282243 | 0.000022 | 0.282229 | -18.7 | -5.3 | 1431 | 2432 | -0.96 |
| 21 | 0.0610 | 0.0012 | 0.282252 | 0.000020 | 0.282237 | -18.4 | -5.0 | 1421 | 2407 | -0.96 |
| 22 | 0.1971 | 0.0049 | 0.282187 | 0.000023 | 0.282129 | -20.7 | -8.9 | 1674 | 2746 | -0.85 |
| 23 | 0.0505 | 0.0013 | 0.282275 | 0.000021 | 0.282260 | -17.6 | -4.2 | 1389 | 2334 | -0.96 |
| 24 | 0.0531 | 0.0013 | 0.282247 | 0.000020 | 0.282232 | -18.6 | -5.2 | 1429 | 2422 | -0.96 |
| 2009KR016 | | | | | | | | | | |
| 1 | 0.1286 | 0.0031 | 0.282279 | 0.000021 | 0.282242 | -17.4 | -4.9 | 1457 | 2392 | -0.91 |
| 2 | 0.0289 | 0.0008 | 0.282270 | 0.000016 | 0.282260 | -17.7 | -4.2 | 1380 | 2333 | -0.97 |
| 3 | 0.0989 | 0.0027 | 0.282263 | 0.000019 | 0.282231 | -18.0 | -5.3 | 1463 | 2426 | -0.92 |
| 4 | 0.0294 | 0.0008 | 0.282263 | 0.000015 | 0.282253 | -18.0 | -4.5 | 1391 | 2357 | -0.97 |
| 5 | 0.0359 | 0.0010 | 0.282286 | 0.000016 | 0.282274 | -17.2 | -3.7 | 1364 | 2289 | -0.97 |
| 6 | 0.0243 | 0.0007 | 0.282310 | 0.000015 | 0.282302 | -16.3 | -2.8 | 1320 | 2203 | -0.98 |
| 7 | 0.0412 | 0.0012 | 0.282312 | 0.000015 | 0.282299 | -16.3 | -2.9 | 1333 | 2212 | -0.97 |
| 8 | 0.0400 | 0.0010 | 0.282267 | 0.000016 | 0.282254 | -17.9 | -4.4 | 1393 | 2353 | -0.97 |
| 9 | 0.0512 | 0.0013 | 0.282280 | 0.000017 | 0.282265 | -17.4 | -4.1 | 1384 | 2320 | -0.96 |
| 10 | 0.0574 | 0.0016 | 0.282274 | 0.000015 | 0.282255 | -17.6 | -4.4 | 1403 | 2350 | -0.95 |
| 11 | 0.0233 | 0.0007 | 0.282281 | 0.000016 | 0.282273 | -17.4 | -3.8 | 1360 | 2294 | -0.98 |
| 12 | 0.0391 | 0.0011 | 0.282252 | 0.000015 | 0.282239 | -18.4 | -5.0 | 1415 | 2401 | -0.97 |
| 13 | 0.0145 | 0.0004 | 0.282283 | 0.000015 | 0.282278 | -17.3 | -3.6 | 1348 | 2279 | -0.99 |
| 14 | 0.0640 | 0.0016 | 0.282310 | 0.000018 | 0.282291 | -16.3 | -3.1 | 1351 | 2236 | -0.95 |
| 15 | 0.0467 | 0.0012 | 0.282295 | 0.000016 | 0.282282 | -16.9 | -3.5 | 1357 | 2267 | -0.97 |
| 16 | 0.0947 | 0.0024 | 0.282304 | 0.000020 | 0.282276 | -16.5 | -3.7 | 1390 | 2284 | -0.93 |
| 17 | 0.0253 | 0.0007 | 0.282281 | 0.000016 | 0.282273 | -17.4 | -3.8 | 1360 | 2293 | -0.98 |
| 18 | 0.0642 | 0.0017 | 0.282277 | 0.000018 | 0.282257 | -17.5 | -4.3 | 1402 | 2344 | -0.95 |
| 19 | 0.0740 | 0.0019 | 0.282230 | 0.000019 | 0.282207 | -19.2 | -6.1 | 1479 | 2502 | -0.94 |
| 20 | 0.1164 | 0.0032 | 0.282274 | 0.000018 | 0.282236 | -17.6 | -5.1 | 1467 | 2410 | -0.90 |
| 21 | 0.0286 | 0.0008 | 0.282272 | 0.000017 | 0.282263 | -17.7 | -4.1 | 1375 | 2325 | -0.98 |
| | 0.0334 | 0.0008 | 0.282260 | 0.000018 | 0.282250 | -18.1 | -4.6 | 1395 | 2366 | -0.97 |
| | 0.0248 | 0.0007 | 0.282263 | 0.000016 | 0.282255 | -18.0 | -4.4 | 1385 | 2351 | -0.98 |
| | 19 | 0.0015 | 0.282313 | 0.000017 | 0.282295 | -16.2 | -3.0 | 1345 | 2223 | -0.95 |
| | | 0.0014 | 0.282308 | 0.000023 | 0.282291 | -16.4 | -3.1 | 1349 | 2237 | -0.96 |
| | | 016 | 0.282267 | 0.000017 | 0.282249 | -17.8 | -4.6 | 1412 | 2370 | -0.95 |

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