E

UPOV

TWC/31/18 Add.
ORIGINAL: English
DATE: August 8, 2013

# INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

Geneva

## TECHNICAL WORKING PARTY ON AUTOMATION AND COMPUTER PROGRAMS

## Thirty-First Session
## Seoul, June 4 to 7, 2013

ADDENDUM

REVISION OF DOCUMENT TGP/8: PART II:
NEW SECTION: DATA PROCESSING FOR THE ASSESSMENT OF DISTINCTNESS AND FOR PRODUCING VARIETY DESCRIPTIONS

*Document prepared by an expert from the United Kingdom*

The Annex to this document illustrates two different methods from the United Kingdom for producing variety descriptions, using a data set for Flax.

[Annex follows]

Practical Exercise

The practical exercise was to illustrate on a common data set the methods used by different UPOV members to produce variety descriptions from measured, quantitative characteristics. The purpose of the practical exercise was to clarify the methods and so aid the development of common guidance on data processing for the production of variety descriptions.

A common data set on Flax varieties was produced by experts from France for the practical exercise. The data comprised 48668 plant observations on 303 varieties in 10 years on UPOV characteristic 21 (Stem: length from cotyledon scar to top boll). There were 1367 variety-by-year combinations, with not all varieties present every year. When present, there were between 20 and 120 observations on a variety in a year, depending on the variety and year.

The methods used in the United Kingdom (the UK methods) to produce variety descriptions require variety-by-year means comprised of equal numbers of observations. Consequently, the common data set was restricted to observations on the first 20 plants of those varieties and years where 20 or more plants of the variety were observed in the year, and such years included 2012. This reduced common data set comprised 936 variety-by-year combinations for 153 reference varieties and 30 candidates in 10 years, for which the variety-by-year means were calculated on the original scale of the characteristics.

*The UK methods*

The UK methods to produce variety descriptions divide the range of expression into states and notes either by 1) division of the range of expression of the characteristic into equal-spaced states: a method used with vegetable crops excluding potato, or 2) comparison with means of delineating varieties: a method used with herbage crops. The number of states is as given in the UPOV Test Guidelines. Both methods calculate over-year means from the variety-by-year means then convert the over-year means to notes. In the division of range method, variety-by-year means from the past 10 years are used to calculate the over-year means, whereas in the delineating varieties method, all years are included in which the reference collection varieties have been tested.

Both the methods were applied to the reduced common data set, and the over-year means were calculated over 10 years. As not all varieties were present in all years, a fitted constants analysis was used to adjust the over-year means for the different years varieties were present in. The variety-by-year means and the over-year variety means, sorted by the latter for the candidate and reference varieties, are shown in the table below. The two methods were used to divide the range of expression for Flax UPOV characteristic 21 into 9 states (see TG/57/7) and allocate notes to the candidate varieties as described below.

*Method by division of the range of expression of the characteristic into equal-spaced states*

The range of expression of the over-year means for the reference collection varieties is 498.0 (=853.06 - 355.04). So each state is of width 498.02/9 =55.34, and the upper limits of states 1 to 8 are 410.37, 465.71, 521.04, 576.38, 631.71, 687.05, 742.38 and 797.72 respectively.

As the over-year means for candidates 262, 263 and 287 are less than 410.37, they have note 1.
As the over-year means for candidates 284 and 283 are between 410.37 and 465.71, they have note 2.
As the over-year means for candidates 288, 290, 289, 303, 275, 269 and 297 are between 465.71 and 521.04, they have note 3.
As the over-year means for candidates 302, 277 and 274 are between 521.04 and 576.38, they have note 4.
As the over-year mean for candidate 228 is between 631.71 and 687.05, it has note 6.
As the over-year means for candidates 270, 293, 267, 295, 273 and 292 are between 687.05 and 742.38, they have note 7.
As the over-year means for candidates 300, 291, 272, 294 and 299 are between 742.38 and 797.72, they have note 8.
As the over-year means for candidates 298, 296 and 301 are greater than 797.72, they have note 9.

*Method by comparison with means of delineating varieties*

For this method, the crop experts use experience of the crop to select delineating reference varieties which define the limits of each of the states. For the purposes of this exercise the following delineating reference varieties (shown in bold in the table below) were chosen however without experience to define the 9 states for this characteristic.

| **Reference variety** | **Delineates** |
|---|---|
| 79 | Upper limit of state 1 |
| 76 | Lower limit of state 3 |
| 146 | Upper limit of state 3 |
| 164 | Lower limit of state 5 |
| 77 | Upper limit of state 5 |
| 36 | Lower limit of state 7 |
| 140 | Upper limit of state 7 |
| 96 | Lower limit of state 9 |

As the over-year means for candidates 262, 263 and 287 are below that for variety 79, they have note 1.
As the over-year means for candidates 284 and 283 are between those for varieties 79 and 76, they have note 2.
As the over-year means for candidates 288, 290, 289, 303 and 275 are between those for varieties 76 and 146, they have note 3.
As the over-year means for candidates 269, 297, 302, 277 and 274 are between those for varieties 146 and 164, they have note 4.
As the over-year mean for candidate 228 is between those for varieties 164 and 77, it has note 5.
As the over-year mean for candidate 270 is between those for varieties 77 and 36, it has note 6.
As the over-year means for candidates 293, 267, 295 and 273 are between those for varieties 36 and 140, they have note 7.
As the over-year means for candidates 292, 300, 291, 272, 294 and 299 are between those for varieties 140 and 96, they have note 8.
As the over-year means for candidates 298, 296 and 301 are greater than that for variety 96, they have note 9.

On request, this data set can be made available to any UPOV member that wishes to illustrate their method to produce variety descriptions from measured, quantitative characteristics.

*Table: Variety-by-year means, over-year means and notes by the two methods*

| Variety[1] | Year | | | | | | | | | | Over-year mean | Stat-us[2] | Note by division of range | Note by deline-ating variety |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2002 | 2003 | 2004 | 2005 | 2006 | 2008 | 2009 | 2010 | 2011 | 2012 | | | | |
| 14 | 470 | 350 | 347 | 339 | 397 | 368 | 338 | 338 | 272 | 333 | 355.0 | Ref' | 1 | 1 |
| 169 | | | | | 488 | 324 | 384 | 387 | 240 | 301 | 383.0 | Ref' | 1 | 1 |
| 168 | | | | | 516 | 293 | 422 | 357 | 290 | 288 | 390.0 | Ref' | 1 | 1 |
| 45 | 470 | 390 | 375 | 354 | 458 | | 427 | 362 | 318 | 403 | 390.6 | Ref' | 1 | 1 |
| 184 | | | | | | 351 | 407 | 342 | 276 | 339 | 392.0 | Ref' | 1 | 1 |
| 83 | 545 | 402 | 403 | 350 | 472 | 342 | 444 | 397 | 303 | 309 | 396.6 | Ref' | 1 | 1 |
| 128 | 548 | 415 | 418 | 338 | 516 | 328 | 449 | 372 | 274 | 334 | 399.1 | Ref' | 1 | 1 |
| 44 | 443 | | 454 | | 422 | | | | 288 | 422 | 399.2 | Ref' | 1 | 1 |
| 166 | | | | 380 | 465 | 330 | 465 | 263 | 356 | 352 | 404.8 | Ref' | 1 | 1 |
| 173 | | | | | 485 | 422 | 423 | 325 | 264 | 349 | 407.0 | Ref' | 1 | 1 |
| 202 | | | | | | | 447 | 351 | 245 | 382 | 407.6 | Ref' | 1 | 1 |
| 40 | 476 | 397 | 424 | 381 | 449 | 419 | 385 | 395 | 350 | 406 | 408.2 | Ref' | 1 | 1 |
| 124 | 462 | | | | | 484 | 362 | 383 | 273 | 412 | 410.0 | Ref' | 1 | 1 |

[1] bold font: delineating variety

[2] Ref': reference varieties / Cand': candidate varieties

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 160 | | | | 352 | 439 | 375 | 391 | 408 | 345 | 354 | 412.1 | Ref' | 2 | 1 |
| **79** | **534** | **391** | **399** | **379** | **483** | **448** | **437** | **385** | **356** | **312** | **412.4** | **Ref'** | **2** | **1** |
| 286 | | | | | | | | | | 358 | 414.1 | Ref' | 2 | 2 |
| 178 | | | | | | 383 | 429 | 368 | 277 | 379 | 416.2 | Ref' | 2 | 2 |
| 203 | | | | | | | 415 | 367 | 295 | 385 | 416.7 | Ref' | 2 | 2 |
| 182 | | | | | | 446 | 375 | 375 | 317 | 329 | 417.4 | Ref' | 2 | 2 |
| 24 | 461 | 426 | 469 | 416 | 439 | 439 | 452 | 347 | 321 | 425 | 419.3 | Ref' | 2 | 2 |
| 149 | | | 387 | | 435 | 429 | 455 | 364 | 384 | 335 | 421.1 | Ref' | 2 | 2 |
| 82 | 636 | 444 | 459 | 400 | 558 | 343 | 451 | 368 | 263 | 309 | 422.9 | Ref' | 2 | 2 |
| 197 | | | | | | | 429 | 487 | 233 | 354 | 426.7 | Ref' | 2 | 2 |
| 219 | | | | | | | 430 | 365 | 310 | 402 | 427.8 | Ref' | 2 | 2 |
| 144 | | 455 | 439 | | | | 443 | | | 407 | 428.9 | Ref' | 2 | 2 |
| 247 | | | | | | | | 413 | | 378 | 430.0 | Ref' | 2 | 2 |
| 30 | 632 | 441 | 427 | 384 | 518 | 360 | 424 | 461 | 299 | 360 | 430.4 | Ref' | 2 | 2 |
| 103 | 574 | 460 | | | | | | | 286 | 408 | 434.1 | Ref' | 2 | 2 |
| 73 | 500 | | | | | | | 407 | 339 | 424 | 434.5 | Ref' | 2 | 2 |
| 281 | | | | | | | | | 270 | 388 | 436.5 | Ref' | 2 | 2 |
| 224 | | | | | | | 414 | 445 | 307 | 377 | 436.8 | Ref' | 2 | 2 |
| 151 | | | 494 | 420 | 481 | 348 | 431 | 404 | 315 | 415 | 439.1 | Ref' | 2 | 2 |
| 195 | | | | | | 407 | 439 | 414 | 356 | 336 | 439.4 | Ref' | 2 | 2 |
| 26 | 519 | | | | | | | | | 467 | 440.4 | Ref' | 2 | 2 |
| 85 | 541 | 457 | 458 | 403 | 502 | 439 | 449 | 388 | 356 | 416 | 440.8 | Ref' | 2 | 2 |
| 56 | | | | | | | | | 344 | 328 | 443.3 | Ref' | 2 | 2 |
| 152 | | | 411 | 363 | 562 | 430 | 496 | 349 | 355 | 384 | 444.5 | Ref' | 2 | 2 |
| 88 | 515 | | | | | | | | 344 | 420 | 444.5 | Ref' | 2 | 2 |
| 226 | | | | | | | | 399 | 340 | 366 | 444.6 | Ref' | 2 | 2 |
| 250 | | | | | | | | 428 | | 404 | 450.8 | Ref' | 2 | 2 |
| 154 | | | 411 | 405 | | 408 | 469 | 486 | | 426 | 453.7 | Ref' | 2 | 2 |
| 280 | | | | | | | | | 285 | 413 | 456.6 | Ref' | 2 | 2 |
| 201 | | | | | | | 456 | 519 | 287 | 362 | 457.2 | Ref' | 2 | 2 |
| 87 | 564 | 445 | 443 | 438 | 542 | 449 | 522 | 462 | 340 | 435 | 463.7 | Ref' | 2 | 2 |
| 196 | | | | | | | 483 | 436 | 347 | 394 | 466.3 | Ref' | 3 | 2 |
| 248 | | | | | | | | 404 | 359 | 417 | 469.2 | Ref' | 3 | 2 |
| **76** | **615** | | | | | **491** | **426** | **461** | **317** | **420** | **469.3** | **Ref'** | **3** | **3** |
| 251 | | | | | | | | 457 | 359 | 364 | 469.3 | Ref' | 3 | 3 |
| 183 | | | | | | 462 | 441 | 368 | 412 | 418 | 469.4 | Ref' | 3 | 3 |
| 177 | | | | | | | | | 318 | 407 | 470.0 | Ref' | 3 | 3 |
| 80 | 589 | | | | | | | | 341 | 436 | 473.3 | Ref' | 3 | 3 |
| 174 | | | | | 527 | 484 | 473 | 455 | 360 | 372 | 474.1 | Ref' | 3 | 3 |
| 231 | | | | | | | | 425 | 393 | 380 | 475.3 | Ref' | 3 | 3 |
| 153 | | | 433 | 424 | 565 | 480 | 515 | 471 | 354 | 361 | 476.0 | Ref' | 3 | 3 |
| 239 | | | | | | | | 434 | 358 | 411 | 477.3 | Ref' | 3 | 3 |
| 212 | | | | | | | 441 | 474 | 411 | 382 | 478.2 | Ref' | 3 | 3 |
| 84 | 610 | 534 | 486 | 443 | 539 | 492 | 491 | 423 | 397 | 397 | 481.1 | Ref' | 3 | 3 |
| 238 | | | | | | | | 465 | 318 | 440 | 483.5 | Ref' | 3 | 3 |
| 113 | 649 | | | 434 | | | | | 318 | 435 | 484.4 | Ref' | 3 | 3 |
| 163 | | | | 414 | 574 | 488 | 469 | 453 | 352 | 421 | 484.5 | Ref' | 3 | 3 |
| 243 | | | | | | | | 516 | 304 | 409 | 485.4 | Ref' | 3 | 3 |
| 230 | | | | | | | | 399 | 430 | 405 | 487.5 | Ref' | 3 | 3 |
| 249 | | | | | | | | 479 | 388 | 392 | 495.5 | Ref' | 3 | 3 |
| 136 | 604 | 537 | 522 | 436 | 570 | 496 | 540 | 498 | 362 | 396 | 495.9 | Ref' | 3 | 3 |
| 61 | 713 | | | 437 | | 523 | 491 | 497 | 338 | 350 | 497.1 | Ref' | 3 | 3 |
| 78 | 653 | 575 | 547 | 408 | 555 | | | | 314 | 460 | 497.2 | Ref' | 3 | 3 |
| 115 | 721 | 525 | 496 | 438 | 607 | 409 | 526 | 514 | 344 | 410 | 498.8 | Ref' | 3 | 3 |
| 278 | | | | | | | | | 345 | 438 | 498.9 | Ref' | 3 | 3 |
| 131 | 654 | 515 | 496 | 455 | 622 | 476 | 528 | 512 | 344 | 450 | 505.1 | Ref' | 3 | 3 |
| 204 | | | | | | | 553 | 496 | 338 | 441 | 508.2 | Ref' | 3 | 3 |
| 17 | 652 | 575 | 557 | 455 | 541 | | | | | 461 | 508.4 | Ref' | 3 | 3 |
| 285 | | | | | | | | | | 454 | 510.0 | Ref' | 3 | 3 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 109 | 621 | 556 | 482 | | | | 511 | 457 | 464 | 498 | 510.1 | Ref' | 3 | 3 |
| 63 | 597 | 549 | 507 | 468 | 585 | 526 | 565 | 494 | 429 | 400 | 511.8 | Ref' | 3 | 3 |
| 189 | | | | | | 496 | 558 | 476 | 324 | 466 | 512.9 | Ref' | 3 | 3 |
| **146** | | **595** | **564** | **449** | **625** | **360** | **543** | **526** | **381** | **423** | **514.0** | **Ref'** | **3** | **3** |
| 252 | | | | | | | | 489 | 379 | 447 | 514.4 | Ref' | 3 | 4 |
| 172 | | | | | 553 | 487 | 539 | 553 | 385 | 407 | 516.2 | Ref' | 3 | 4 |
| 114 | 737 | | | | | 542 | 482 | 468 | 386 | 415 | 519.2 | Ref' | 3 | 4 |
| 213 | | | | | | | 557 | 468 | 399 | 459 | 521.8 | Ref' | 4 | 4 |
| 143 | | 544 | 586 | 469 | 620 | 376 | 563 | 519 | 402 | 479 | 524.2 | Ref' | 4 | 4 |
| 121 | 663 | | | | | | | | 363 | 494 | 524.7 | Ref' | 4 | 4 |
| 132 | 728 | 540 | 524 | 465 | 640 | 517 | 549 | 533 | 346 | 406 | 524.8 | Ref' | 4 | 4 |
| 179 | | | | | | 462 | 646 | 484 | 259 | 540 | 527.4 | Ref' | 4 | 4 |
| 147 | | 578 | 533 | 487 | 620 | 522 | 508 | 553 | 382 | 405 | 527.5 | Ref' | 4 | 4 |
| 214 | | | | | | | 569 | 519 | 386 | 434 | 528.2 | Ref' | 4 | 4 |
| 159 | | | | 436 | 580 | | | | 399 | 535 | 535.3 | Ref' | 4 | 4 |
| 90 | 764 | 564 | 495 | 460 | 640 | 528 | 554 | 579 | 393 | 456 | 543.1 | Ref' | 4 | 4 |
| 167 | | | | 493 | 621 | | | | | 491 | 545.7 | Ref' | 4 | 4 |
| 33 | 737 | 612 | 549 | 461 | 654 | 626 | 581 | 479 | 376 | 423 | 549.7 | Ref' | 4 | 4 |
| 190 | | | | | | 507 | 552 | 558 | 416 | 488 | 553.1 | Ref' | 4 | 4 |
| **164** | | | | **491** | **611** | **475** | **572** | **571** | **449** | **492** | **554.5** | **Ref'** | **4** | **5** |
| 70 | 752 | | | | | | | 506 | 365 | 540 | 557.3 | Ref' | 4 | 5 |
| 279 | | | | | | | | | 389 | 537 | 570.3 | Ref' | 4 | 5 |
| 42 | 712 | 748 | 612 | 590 | 709 | 565 | 699 | 560 | | 572 | 623.0 | Ref' | 5 | 5 |
| 200 | | | | | | | 685 | 623 | 410 | 604 | 632.0 | Ref' | 6 | 5 |
| 229 | | | | | | | | 601 | 471 | 645 | 648.3 | Ref' | 6 | 5 |
| 208 | | | | | | | 726 | 719 | 378 | 605 | 658.2 | Ref' | 6 | 5 |
| **77** | **875** | | **697** | **611** | **795** | **580** | **714** | **675** | **399** | **626** | **668.7** | **Ref'** | **6** | **5** |
| 227 | | | | | | | | 702 | 472 | 639 | 680.5 | Ref' | 6 | 6 |
| 157 | | | 712 | 683 | 725 | 665 | 733 | 691 | 415 | 616 | 680.6 | Ref' | 6 | 6 |
| 282 | | | | | | | | | 475 | 672 | 680.7 | Ref' | 6 | 6 |
| 49 | 874 | 769 | 712 | 630 | 746 | 558 | 739 | 661 | 493 | 634 | 681.6 | Ref' | 6 | 6 |
| 188 | | | | | | 646 | 719 | 675 | 485 | 649 | 683.8 | Ref' | 6 | 6 |
| 156 | | | 714 | 684 | 766 | 692 | 749 | 712 | 391 | 638 | 694.0 | Ref' | 7 | 6 |
| 244 | | | | | | | | 699 | 527 | 629 | 694.4 | Ref' | 7 | 6 |
| 253 | | | | | | | | 729 | 486 | 663 | 702.2 | Ref' | 7 | 6 |
| **36** | **926** | **783** | **726** | **643** | **775** | **621** | **743** | **662** | **518** | **633** | **702.8** | **Ref'** | **7** | **7** |
| 130 | 902 | 770 | 723 | 675 | 782 | 660 | 779 | 665 | 509 | 639 | 710.3 | Ref' | 7 | 7 |
| 185 | | | | | | 621 | 752 | 752 | 491 | 695 | 711.2 | Ref' | 7 | 7 |
| 241 | | | | | | | | 692 | 503 | 725 | 716.1 | Ref' | 7 | 7 |
| 206 | | | | | | | 712 | 714 | 629 | 626 | 721.7 | Ref' | 7 | 7 |
| 150 | | | 733 | 682 | 824 | 668 | 781 | 729 | 471 | 680 | 721.8 | Ref' | 7 | 7 |
| 209 | | | | | | | 727 | 771 | 518 | 667 | 722.0 | Ref' | 7 | 7 |
| 258 | | | | | | | | | 578 | 651 | 722.0 | Ref' | 7 | 7 |
| 217 | | | | | | | 709 | 733 | 532 | 713 | 723.1 | Ref' | 7 | 7 |
| 142 | | 811 | 769 | 666 | 804 | 641 | 715 | 750 | 481 | 714 | 723.4 | Ref' | 7 | 7 |
| 211 | | | | | | | 763 | 743 | 567 | 624 | 725.6 | Ref' | 7 | 7 |
| 158 | | | 774 | 694 | 771 | 662 | 750 | 805 | 533 | 629 | 727.9 | Ref' | 7 | 7 |
| 99 | 955 | 814 | 760 | 647 | 791 | 664 | 746 | 714 | 476 | 719 | 728.3 | Ref' | 7 | 7 |
| 237 | | | | | | | | 754 | 520 | 690 | 730.9 | Ref' | 7 | 7 |
| 12 | 916 | 827 | 736 | 659 | 788 | 722 | 750 | 729 | 531 | 662 | 731.9 | Ref' | 7 | 7 |
| 210 | | | | | | | 737 | 765 | 595 | 628 | 732.3 | Ref' | 7 | 7 |
| 207 | | | | | | | 804 | 730 | 555 | 638 | 732.6 | Ref' | 7 | 7 |
| 268 | | | | | | | | | 590 | 662 | 733.1 | Ref' | 7 | 7 |
| 225 | | | | | | | 701 | 737 | | 721 | 735.1 | Ref' | 7 | 7 |
| 165 | | | | 713 | 813 | 675 | 820 | 752 | 497 | 657 | 735.3 | Ref' | 7 | 7 |
| 170 | | | | | 799 | 680 | 813 | 712 | 542 | 692 | 735.3 | Ref' | 7 | 7 |
| 71 | 960 | 784 | 753 | 691 | 792 | 674 | 812 | 744 | 462 | 697 | 736.7 | Ref' | 7 | 7 |
| 215 | | | | | | | 792 | 751 | 508 | 702 | 739.4 | Ref' | 7 | 7 |
| **140** | | **814** | **739** | | **801** | **680** | **814** | **703** | **535** | **728** | **740.7** | **Ref'** | **7** | **7** |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 175 | | | | | 805 | 642 | 806 | 758 | 570 | 692 | 741.1 | Ref’ | 7 | 8 |
| 1 | 942 | 803 | 782 | 717 | 781 | 664 | 773 | 749 | 564 | 645 | 741.7 | Ref’ | 7 | 8 |
| 39 | 922 | 820 | 804 | 690 | 797 | 666 | 745 | 756 | 545 | 674 | 741.7 | Ref’ | 7 | 8 |
| 35 | 953 | 803 | 742 | 675 | 805 | 665 | 798 | 760 | 551 | 673 | 742.4 | Ref’ | 8 | 8 |
| 205 | | | | | | | 776 | 801 | 508 | 684 | 743.5 | Ref’ | 8 | 8 |
| 260 | | | | | | | | | 584 | 694 | 746.5 | Ref’ | 8 | 8 |
| 38 | 979 | | | | | 719 | 769 | 691 | 520 | 720 | 746.9 | Ref’ | 8 | 8 |
| 98 | 946 | 817 | 741 | 691 | 804 | 697 | 787 | 733 | 569 | 706 | 749.0 | Ref’ | 8 | 8 |
| 216 | | | | | | | 801 | 730 | 553 | 723 | 753.0 | Ref’ | 8 | 8 |
| 148 | | | 802 | 699 | 854 | 675 | 771 | 869 | 542 | 686 | 762.6 | Ref’ | 8 | 8 |
| 21 | 995 | 827 | 800 | 744 | 826 | 687 | 856 | 726 | 438 | 734 | 763.0 | Ref’ | 8 | 8 |
| 102 | 975 | 828 | 820 | 739 | 822 | 723 | 821 | 685 | 521 | 707 | 764.0 | Ref’ | 8 | 8 |
| 180 | | | | | | 715 | 843 | 745 | 599 | 713 | 772.0 | Ref’ | 8 | 8 |
| **96** | **1006** | **809** | **795** | **702** | **838** | **704** | **827** | **765** | **540** | **741** | **772.3** | **Ref’** | **8** | **9** |
| 181 | | | | | | 716 | 817 | 809 | 566 | 719 | 774.4 | Ref’ | 8 | 9 |
| 20 | 975 | | 801 | | | | 726 | 807 | | 734 | 782.5 | Ref’ | 8 | 9 |
| 28 | 1044 | 848 | 865 | 753 | 836 | 718 | 766 | 803 | 522 | 748 | 790.2 | Ref’ | 8 | 9 |
| 222 | | | | | | | 811 | 839 | 564 | 775 | 798.2 | Ref’ | 9 | 9 |
| 221 | | | | | | | 819 | 812 | 591 | 780 | 801.7 | Ref’ | 9 | 9 |
| 257 | | | | | | | | | 655 | 734 | 801.9 | Ref’ | 9 | 9 |
| 52 | 1024 | 895 | | | | | 719 | 829 | | 721 | 805.7 | Ref’ | 9 | 9 |
| 97 | 1104 | 959 | 937 | 863 | 907 | 736 | 886 | 717 | 662 | 761 | 853.1 | Ref’ | 9 | 9 |
| | | | | | | | | | | | | | | |
| 262 | | | | | | | | | 247 | 301 | 381.7 | Cand’ | 1 | 1 |
| 263 | | | | | | | | | 234 | 353 | 400.7 | Cand’ | 1 | 1 |
| 287 | | | | | | | | | | 349 | 405.7 | Cand’ | 1 | 1 |
| 284 | | | | | | | | | | 357 | 413.4 | Cand’ | 2 | 2 |
| 283 | | | | | | | | | | 381 | 437.1 | Cand’ | 2 | 2 |
| 288 | | | | | | | | | | 422 | 478.1 | Cand’ | 3 | 3 |
| 290 | | | | | | | | | | 433 | 489.0 | Cand’ | 3 | 3 |
| 289 | | | | | | | | | | 434 | 490.4 | Cand’ | 3 | 3 |
| 303 | | | | | | | | | | 449 | 505.6 | Cand’ | 3 | 3 |
| 275 | | | | | | | | | 341 | 469 | 512.2 | Cand’ | 3 | 3 |
| 269 | | | | | | | | | 351 | 467 | 516.2 | Cand’ | 3 | 4 |
| 297 | | | | | | | | | | 463 | 518.8 | Cand’ | 3 | 4 |
| 302 | | | | | | | | | | 468 | 524.6 | Cand’ | 4 | 4 |
| 277 | | | | | | | | | 417 | 456 | 544.1 | Cand’ | 4 | 4 |
| 274 | | | | | | | | | 405 | 481 | 550.2 | Cand’ | 4 | 4 |
| 228 | | | | | | | | 671 | 467 | 624 | 663.5 | Cand’ | 6 | 5 |
| 270 | | | | | | | | | 557 | 616 | 693.8 | Cand’ | 7 | 6 |
| 293 | | | | | | | | | | 650 | 706.6 | Cand’ | 7 | 7 |
| 267 | | | | | | | | | 591 | 642 | 723.8 | Cand’ | 7 | 7 |
| 295 | | | | | | | | | | 677 | 733.3 | Cand’ | 7 | 7 |
| 273 | | | | | | | | | 549 | 716 | 739.9 | Cand’ | 7 | 7 |
| 292 | | | | | | | | | | 685 | 741.3 | Cand’ | 7 | 8 |
| 300 | | | | | | | | | | 700 | 756.6 | Cand’ | 8 | 8 |
| 291 | | | | | | | | | | 704 | 760.5 | Cand’ | 8 | 8 |
| 272 | | | | | | | | | 580 | 726 | 760.6 | Cand’ | 8 | 8 |
| 294 | | | | | | | | | | 707 | 763.7 | Cand’ | 8 | 8 |
| 299 | | | | | | | | | | 713 | 769.2 | Cand’ | 8 | 8 |
| 298 | | | | | | | | | | 751 | 807.5 | Cand’ | 9 | 9 |
| 296 | | | | | | | | | | 783 | 839.0 | Cand’ | 9 | 9 |
| 301 | | | | | | | | | | 784 | 840.3 | Cand’ | 9 | 9 |

[End of Annex and of document]