

Appendix (A) : Affine model results

| No | Correct coordinates | | Measured coordinates | | Difference | | Mean | | Mean-Difference | |
|------|---------------------|-------------|----------------------|-------------|------------|----------|----------|----------|-----------------|----------|
| | E | N | E | N | E | N | E | N | E | N |
| 1 | 445008.287 | 1731812.697 | 445008.615 | 1731812.511 | -0.328 | 0.186 | -0.69545 | 0.103273 | -0.36745 | -0.08273 |
| 2 | 446021.518 | 1732413.269 | 446021.829 | 1732412.98 | -0.311 | 0.289 | -0.69545 | 0.103273 | -0.38445 | -0.18573 |
| 3 | 445867.244 | 1730970.767 | 445867.325 | 1730970.92 | -0.081 | -0.153 | -0.69545 | 0.103273 | -0.61445 | 0.256273 |
| 4 | 445962.689 | 1729695.483 | 445962.689 | 1729695.483 | 0 | 0 | -0.69545 | 0.103273 | -0.69545 | 0.103273 |
| 5 | 444620.229 | 1729630.65 | 444620.58 | 1729629.694 | -0.351 | 0.956 | -0.69545 | 0.103273 | -0.34445 | -0.85273 |
| 6 | 444290.074 | 1730882.034 | 444290.187 | 1730882.189 | -0.113 | -0.155 | -0.69545 | 0.103273 | -0.58245 | 0.258273 |
| 7 | 443090.851 | 1730901.975 | 443090.97 | 1730900.653 | -0.119 | 1.322 | -0.69545 | 0.103273 | -0.57645 | -1.21873 |
| 8 | 443057.765 | 1729655.36 | 443057.755 | 1729655.27 | 0.01 | 0.09 | -0.69545 | 0.103273 | -0.70545 | 0.013273 |
| 9 | 441759.126 | 1729756.106 | 441759.179 | 1729756.148 | -0.053 | -0.042 | -0.69545 | 0.103273 | -0.64245 | 0.145273 |
| 10 | 441891.378 | 1731122.716 | 441891.165 | 1731122.395 | 0.213 | 0.321 | -0.69545 | 0.103273 | -0.90845 | -0.21773 |
| 11 | 441809.737 | 1732352.571 | 441809.69 | 1732352.518 | 0.047 | 0.053 | -0.69545 | 0.103273 | -0.74245 | 0.050273 |
| 12 | 443032.71 | 1732323.238 | 443032.833 | 1732323.41 | -0.123 | -0.172 | -0.69545 | 0.103273 | -0.57245 | 0.275273 |
| 13 | 443917.227 | 1732396.591 | 443917.311 | 1732396.64 | -0.084 | -0.049 | -0.69545 | 0.103273 | -0.61145 | 0.152273 |
| 14 | 444806.579 | 1733323.328 | 444806.827 | 1733323.482 | -0.248 | -0.154 | -0.69545 | 0.103273 | -0.44745 | 0.257273 |
| 15 | 445912.219 | 1733500.3 | 445912.26 | 1733500.37 | -0.041 | -0.07 | -0.69545 | 0.103273 | -0.65445 | 0.173273 |
| 16 | 445947.03 | 1734701.255 | 445947.03 | 1734701.255 | 0 | 0 | -0.69545 | 0.103273 | -0.69545 | 0.103273 |
| 17 | 445059.396 | 1734711.685 | 445059.225 | 1734711.92 | 0.171 | -0.235 | -0.69545 | 0.103273 | -0.86645 | 0.338273 |
| 18 | 444138.903 | 1734693.93 | 444138.87 | 1734693.945 | 0.033 | -0.015 | -0.69545 | 0.103273 | -0.72845 | 0.118273 |
| 19 | 443049.354 | 1734671.463 | 443049.377 | 1734671.47 | -0.023 | -0.007 | -0.69545 | 0.103273 | -0.67245 | 0.110273 |
| 20 | 441894.482 | 1734680.846 | 441894.482 | 1734680.846 | 0 | 0 | -0.69545 | 0.103273 | -0.69545 | 0.103273 |
| 21 | 441816.039 | 1733406.768 | 441816.147 | 1733406.64 | -0.108 | 0.128 | -0.69545 | 0.103273 | -0.58745 | -0.02473 |
| 22 | 443057.76 | 1733341.694 | 443057.781 | 1733341.715 | -0.021 | -0.021 | -0.69545 | 0.103273 | -0.67445 | 0.124273 |
| Mean | | | | | -0.06955 | 0.103273 | | | | |

(3) points Affine

| Mean-Difference sqr | | RMSE | | Sigma(E,N) |
|---------------------|-------------|----------|----------|------------|
| E | N | E | N | |
| 0.135019503 | 0.006843757 | 0.641449 | 0.359367 | 0.735256 |
| 0.147801802 | 0.034494519 | | | |
| 0.377548802 | 0.06567585 | | | |
| 0.483650703 | 0.010665313 | | | |
| 0.118645802 | 0.727143337 | | | |
| 0.339248003 | 0.066704943 | | | |
| 0.332294603 | 1.485295501 | | | |
| 0.497659703 | 0.000176173 | | | |
| 0.412742002 | 0.021104245 | | | |
| 0.825281403 | 0.047405047 | | | |
| 0.551232003 | 0.002527375 | | | |
| 0.327699003 | 0.075775225 | | | |
| 0.373871103 | 0.023187066 | | | |
| 0.200211503 | 0.066189397 | | | |
| 0.428304802 | 0.030023533 | | | |
| 0.483650703 | 0.010665313 | | | |
| 0.750735603 | 0.114428622 | | | |
| 0.530639402 | 0.013988503 | | | |
| 0.452189003 | 0.012160135 | | | |
| 0.483650703 | 0.010665313 | | | |
| 0.345097502 | 0.000611425 | | | |
| 0.454882802 | 0.015443779 | | | |
| 9.052056455 | 2.841174364 | | | |

Continue table (3) points Affine

| No | Correct coordinates | | Measured coordinates | | Difference | | Mean | | Mean-Difference | |
|----|---------------------|-------------|----------------------|-------------|------------|--------|----------|----------|-----------------|----------|
| | E | N | E | N | E | N | E | N | E | N |
| 1 | 445008.287 | 1731812.697 | 445008.35 | 1731812.785 | -0.063 | -0.088 | -0.07405 | -0.07309 | -0.011045 | 0.014909 |
| 2 | 446021.518 | 1732413.269 | 446021.53 | 1732413.279 | -0.012 | -0.01 | -0.07405 | -0.07309 | -0.062045 | -0.06309 |
| 3 | 445867.244 | 1730970.767 | 445867.273 | 1730970.859 | -0.029 | -0.092 | -0.07405 | -0.07309 | -0.045045 | 0.018909 |
| 4 | 445962.689 | 1729695.483 | 445962.689 | 1729695.483 | 0 | 0 | -0.07405 | -0.07309 | -0.074045 | -0.07309 |
| 5 | 444620.229 | 1729630.65 | 444620.29 | 1729630.95 | -0.061 | -0.3 | -0.07405 | -0.07309 | -0.013045 | 0.226909 |

| | | | | | | | | | | |
|----|------------|-------------|------------|-------------|----------|----------|----------|----------|-----------|----------|
| 6 | 444290.074 | 1730882.034 | 444290.25 | 1730882.09 | -0.176 | -0.056 | -0.07405 | -0.07309 | 0.101955 | -0.01709 |
| 7 | 443090.851 | 1730901.975 | 443090.67 | 1730901.98 | 0.181 | -0.005 | -0.07405 | -0.07309 | -0.255045 | -0.06809 |
| 8 | 443057.765 | 1729655.36 | 443057.907 | 1729655.396 | -0.142 | -0.036 | -0.07405 | -0.07309 | 0.067955 | -0.03709 |
| 9 | 441759.126 | 1729756.106 | 441759.126 | 1729756.106 | 0 | 0 | -0.07405 | -0.07309 | -0.074045 | -0.07309 |
| 10 | 441891.378 | 1731122.716 | 441891.568 | 1731122.855 | -0.19 | -0.139 | -0.07405 | -0.07309 | 0.115955 | 0.065909 |
| 11 | 441809.737 | 1732352.571 | 441809.785 | 1732352.68 | -0.048 | -0.109 | -0.07405 | -0.07309 | -0.026045 | 0.035909 |
| 12 | 443032.71 | 1732323.238 | 443032.865 | 1732323.28 | -0.155 | -0.042 | -0.07405 | -0.07309 | 0.080955 | -0.03109 |
| 13 | 443917.227 | 1732396.591 | 443917.245 | 1732396.601 | -0.018 | -0.01 | -0.07405 | -0.07309 | -0.056045 | -0.06309 |
| 14 | 444806.579 | 1733323.328 | 444806.95 | 1733323.534 | -0.371 | -0.206 | -0.07405 | -0.07309 | 0.296955 | 0.132909 |
| 15 | 445912.219 | 1733500.3 | 445912.259 | 1733500.487 | -0.04 | -0.187 | -0.07405 | -0.07309 | -0.034045 | 0.113909 |
| 16 | 445947.03 | 1734701.255 | 445947.03 | 1734701.255 | 0 | 0 | -0.07405 | -0.07309 | -0.074045 | -0.07309 |
| 17 | 445059.396 | 1734711.685 | 445059.509 | 1734711.789 | -0.113 | -0.104 | -0.07405 | -0.07309 | 0.038955 | 0.030909 |
| 18 | 444138.903 | 1734693.93 | 444138.985 | 1734693.994 | -0.082 | -0.064 | -0.07405 | -0.07309 | 0.007955 | -0.00909 |
| 19 | 443049.354 | 1734671.463 | 443049.455 | 1734671.495 | -0.101 | -0.032 | -0.07405 | -0.07309 | 0.026955 | -0.04109 |
| 20 | 441894.482 | 1734680.846 | 441894.482 | 1734680.846 | 0 | 0 | -0.07405 | -0.07309 | -0.074045 | -0.07309 |
| 21 | 441816.039 | 1733406.768 | 441816.193 | 1733406.795 | -0.154 | -0.027 | -0.07405 | -0.07309 | 0.079955 | -0.04609 |
| 22 | 443057.76 | 1733341.694 | 443057.815 | 1733341.795 | -0.055 | -0.101 | -0.07405 | -0.07309 | -0.019045 | 0.027909 |
| | Mean | | | | -0.07405 | -0.07309 | | | | |

(4) points Affine

| Mean-Difference sqr | | RMSE | | Sigma(E,N) |
|---------------------|-------------|----------|----------|------------|
| E | N | E | N | |
| 0.000121992 | 0.000222278 | 0.102333 | 0.077039 | 0.12809 |
| 0.003849582 | 0.003980474 | | | |
| 0.002029052 | 0.00035755 | | | |
| 0.005482662 | 0.005342294 | | | |
| 0.000170172 | 0.051487694 | | | |
| 0.010394822 | 0.000292102 | | | |
| 0.065047952 | 0.004636384 | | | |
| 0.004617882 | 0.001375742 | | | |
| 0.005482662 | 0.005342294 | | | |
| 0.013445562 | 0.004343996 | | | |
| 0.000678342 | 0.001289456 | | | |
| 0.006553712 | 0.00096665 | | | |
| 0.003141042 | 0.003980474 | | | |
| 0.088182272 | 0.017664802 | | | |
| 0.001159062 | 0.01297526 | | | |
| 0.005482662 | 0.005342294 | | | |
| 0.001517492 | 0.000955366 | | | |
| 6.3282E-05 | 8.26463E-05 | | | |
| 0.000726572 | 0.00168847 | | | |
| 0.005482662 | 0.005342294 | | | |
| 0.006392802 | 0.00212438 | | | |
| 0.000362712 | 0.000778912 | | | |
| 0.230384955 | 0.130571818 | | | |

Continue table (4) points Affine

| No | Correct coordinates | | Measured coordinates | | Difference | | Mean | | Mean-Difference | |
|----|---------------------|-------------|----------------------|-------------|------------|--------|----------|----------|-----------------|----------|
| | E | N | E | N | E | N | E | N | E | N |
| 1 | 445008.287 | 1731812.697 | 445008.31 | 1731812.77 | -0.023 | -0.073 | -0.03236 | -0.04932 | -0.009364 | 0.023682 |
| 2 | 446021.518 | 1732413.269 | 446021.524 | 1732413.273 | -0.006 | -0.004 | -0.03236 | -0.04932 | -0.026364 | -0.04532 |
| 3 | 445867.244 | 1730970.767 | 445867.265 | 1730970.82 | -0.021 | -0.053 | -0.03236 | -0.04932 | -0.011364 | 0.003682 |
| 4 | 445962.689 | 1729695.483 | 445962.689 | 1729695.483 | 0 | 0 | -0.03236 | -0.04932 | -0.032364 | -0.04932 |

| | | | | | | | | | | |
|----|------------|-------------|------------|-------------|----------|----------|----------|----------|-----------|----------|
| 5 | 444620.229 | 1729630.65 | 444620.27 | 1729630.75 | -0.041 | -0.1 | -0.03236 | -0.04932 | 0.008636 | 0.050682 |
| 6 | 444290.074 | 1730882.034 | 444290.18 | 1730882.051 | -0.106 | -0.017 | -0.03236 | -0.04932 | 0.073636 | -0.03232 |
| 7 | 443090.851 | 1730901.975 | 443090.59 | 1730901.965 | 0.261 | 0.01 | -0.03236 | -0.04932 | -0.293364 | -0.05932 |
| 8 | 443057.765 | 1729655.36 | 443057.811 | 1729655.384 | -0.046 | -0.024 | -0.03236 | -0.04932 | 0.013636 | -0.02532 |
| 9 | 441759.126 | 1729756.106 | 441759.126 | 1729756.106 | 0 | 0 | -0.03236 | -0.04932 | -0.032364 | -0.04932 |
| 10 | 441891.378 | 1731122.716 | 441891.506 | 1731122.832 | -0.128 | -0.116 | -0.03236 | -0.04932 | 0.095636 | 0.066682 |
| 11 | 441809.737 | 1732352.571 | 441809.745 | 1732352.585 | -0.008 | -0.014 | -0.03236 | -0.04932 | -0.024364 | -0.03532 |
| 12 | 443032.71 | 1732323.238 | 443032.79 | 1732323.273 | -0.08 | -0.035 | -0.03236 | -0.04932 | 0.047636 | -0.01432 |
| 13 | 443917.227 | 1732396.591 | 443917.227 | 1732396.591 | 0 | 0 | -0.03236 | -0.04932 | -0.032364 | -0.04932 |
| 14 | 444806.579 | 1733323.328 | 444806.79 | 1733323.528 | -0.211 | -0.2 | -0.03236 | -0.04932 | 0.178636 | 0.150682 |
| 15 | 445912.219 | 1733500.3 | 445912.25 | 1733500.476 | -0.031 | -0.176 | -0.03236 | -0.04932 | -0.001364 | 0.126682 |
| 16 | 445947.03 | 1734701.255 | 445947.03 | 1734701.255 | 0 | 0 | -0.03236 | -0.04932 | -0.032364 | -0.04932 |
| 17 | 445059.396 | 1734711.685 | 445059.47 | 1734711.78 | -0.074 | -0.095 | -0.03236 | -0.04932 | 0.041636 | 0.045682 |
| 18 | 444138.903 | 1734693.93 | 444138.97 | 1734693.999 | -0.067 | -0.069 | -0.03236 | -0.04932 | 0.034636 | 0.019682 |
| 19 | 443049.354 | 1734671.463 | 443049.39 | 1734671.485 | -0.036 | -0.022 | -0.03236 | -0.04932 | 0.003636 | -0.02732 |
| 20 | 441894.482 | 1734680.846 | 441894.482 | 1734680.846 | 0 | 0 | -0.03236 | -0.04932 | -0.032364 | -0.04932 |
| 21 | 441816.039 | 1733406.768 | 441816.09 | 1733406.789 | -0.051 | -0.021 | -0.03236 | -0.04932 | 0.018636 | -0.02832 |
| 22 | 443057.76 | 1733341.694 | 443057.804 | 1733341.77 | -0.044 | -0.076 | -0.03236 | -0.04932 | 0.011636 | 0.026682 |
| | Mean | | | | -0.03236 | -0.04932 | | | | |

(5) points Affine

Continue table (5) points Affine

| Mean-Difference sqr | | RMSE | | delta Sigma(E,N) |
|---------------------|-------------|----------|----------|------------------|
| E | N | E | N | |
| 8.76845E-05 | 0.000560837 | 0.081253 | 0.057187 | 0.09936 |
| 0.00069506 | 0.002053721 | | | |
| 0.00012914 | 1.35571E-05 | | | |
| 0.001047428 | 0.002432265 | | | |
| 7.45805E-05 | 0.002568665 | | | |
| 0.00542226 | 0.001044453 | | | |
| 0.086062436 | 0.003518625 | | | |
| 0.00018594 | 0.000641001 | | | |
| 0.001047428 | 0.002432265 | | | |
| 0.009146244 | 0.004446489 | | | |
| 0.000593604 | 0.001247361 | | | |
| 0.002269188 | 0.000205005 | | | |
| 0.001047428 | 0.002432265 | | | |
| 0.03191082 | 0.022705065 | | | |
| 1.8605E-06 | 0.016048329 | | | |
| 0.001047428 | 0.002432265 | | | |
| 0.001733556 | 0.002086845 | | | |
| 0.001199652 | 0.000387381 | | | |
| 1.32205E-05 | 0.000746273 | | | |
| 0.001047428 | 0.002432265 | | | |
| 0.0003473 | 0.000801909 | | | |
| 0.000135396 | 0.000711929 | | | |
| 0.145245091 | 0.071948773 | | | |

| No | Correct coordinates | | Measured coordinates | | Difference | | Mean | | Mean-Difference | |
|----|---------------------|---|----------------------|---|------------|---|------|---|-----------------|---|
| | E | N | E | N | E | N | E | N | E | N |

| | | | | | | | | | | |
|----|------------|-------------|------------|-------------|----------|----------|----------|----------|-----------|----------|
| 1 | 445008.287 | 1731812.697 | 445008.305 | 1731812.71 | -0.018 | -0.013 | -0.01559 | -0.03091 | 0.002409 | -0.01791 |
| 2 | 446021.518 | 1732413.269 | 446021.518 | 1732413.269 | 0 | 0 | -0.01559 | -0.03091 | -0.015591 | -0.03091 |
| 3 | 445867.244 | 1730970.767 | 445867.259 | 1730970.78 | -0.015 | -0.013 | -0.01559 | -0.03091 | -0.000591 | -0.01791 |
| 4 | 445962.689 | 1729695.483 | 445962.689 | 1729695.483 | 0 | 0 | -0.01559 | -0.03091 | -0.015591 | -0.03091 |
| 5 | 444620.229 | 1729630.65 | 444620.26 | 1729630.69 | -0.031 | -0.04 | -0.01559 | -0.03091 | 0.015409 | 0.009091 |
| 6 | 444290.074 | 1730882.034 | 444290.15 | 1730882.043 | -0.076 | -0.009 | -0.01559 | -0.03091 | 0.060409 | -0.02191 |
| 7 | 443090.851 | 1730901.975 | 443090.57 | 1730901.95 | 0.281 | 0.025 | -0.01559 | -0.03091 | -0.296591 | -0.05591 |
| 8 | 443057.765 | 1729655.36 | 443057.804 | 1729655.378 | -0.039 | -0.018 | -0.01559 | -0.03091 | 0.023409 | -0.01291 |
| 9 | 441759.126 | 1729756.106 | 441759.126 | 1729756.106 | 0 | 0 | -0.01559 | -0.03091 | -0.015591 | -0.03091 |
| 10 | 441891.378 | 1731122.716 | 441891.49 | 1731122.79 | -0.112 | -0.074 | -0.01559 | -0.03091 | 0.096409 | 0.043091 |
| 11 | 441809.737 | 1732352.571 | 441809.737 | 1732352.571 | 0 | 0 | -0.01559 | -0.03091 | -0.015591 | -0.03091 |
| 12 | 443032.71 | 1732323.238 | 443032.74 | 1732323.268 | -0.03 | -0.03 | -0.01559 | -0.03091 | 0.014409 | -0.00091 |
| 13 | 443917.227 | 1732396.591 | 443917.23 | 1732396.597 | -0.003 | -0.006 | -0.01559 | -0.03091 | -0.012591 | -0.02491 |
| 14 | 444806.579 | 1733323.328 | 444806.76 | 1733323.48 | -0.181 | -0.152 | -0.01559 | -0.03091 | 0.165409 | 0.121091 |
| 15 | 445912.219 | 1733500.3 | 445912.24 | 1733500.468 | -0.021 | -0.168 | -0.01559 | -0.03091 | 0.005409 | 0.137091 |
| 16 | 445947.03 | 1734701.255 | 445947.03 | 1734701.255 | 0 | 0 | -0.01559 | -0.03091 | -0.015591 | -0.03091 |
| 17 | 445059.396 | 1734711.685 | 445059.41 | 1734711.7 | -0.014 | -0.015 | -0.01559 | -0.03091 | -0.001591 | -0.01591 |
| 18 | 444138.903 | 1734693.93 | 444138.93 | 1734693.995 | -0.027 | -0.065 | -0.01559 | -0.03091 | 0.011409 | 0.034091 |
| 19 | 443049.354 | 1734671.463 | 443049.37 | 1734671.479 | -0.016 | -0.016 | -0.01559 | -0.03091 | 0.000409 | -0.01491 |
| 20 | 441894.482 | 1734680.846 | 441894.482 | 1734680.846 | 0 | 0 | -0.01559 | -0.03091 | -0.015591 | -0.03091 |
| 21 | 441816.039 | 1733406.768 | 441816.06 | 1733406.785 | -0.021 | -0.017 | -0.01559 | -0.03091 | 0.005409 | -0.01391 |
| 22 | 443057.76 | 1733341.694 | 443057.78 | 1733341.763 | -0.02 | -0.069 | -0.01559 | -0.03091 | 0.004409 | 0.038091 |
| | Mean | | | | -0.01559 | -0.03091 | | | | |

(6) points Affine

| Mean-Difference sqr | | RMSE | | Sigma(E,N) |
|---------------------|-------------|----------|----------|------------|
| E | N | E | N | |
| 5.80328E-06 | 0.000320732 | 0.077194 | 0.047408 | 0.09059 |
| 0.000243079 | 0.000955366 | | | |
| 3.49281E-07 | 0.000320732 | | | |
| 0.000243079 | 0.000955366 | | | |
| 0.000237437 | 8.26463E-05 | | | |
| 0.003649247 | 0.000480004 | | | |
| 0.087966221 | 0.003125816 | | | |
| 0.000547981 | 0.000166642 | | | |
| 0.000243079 | 0.000955366 | | | |
| 0.009294695 | 0.001856834 | | | |
| 0.000243079 | 0.000955366 | | | |
| 0.000207619 | 8.26281E-07 | | | |
| 0.000158533 | 0.000620458 | | | |
| 0.027360137 | 0.01466303 | | | |
| 2.92573E-05 | 0.018793942 | | | |
| 0.000243079 | 0.000955366 | | | |
| 2.53128E-06 | 0.000253096 | | | |
| 0.000130165 | 0.001162196 | | | |
| 1.67281E-07 | 0.000222278 | | | |
| 0.000243079 | 0.000955366 | | | |
| 2.92573E-05 | 0.00019346 | | | |
| 1.94393E-05 | 0.001450924 | | | |
| 0.131097318 | 0.049445818 | | | |

Continue of table (6) points Affine

| No | Correct coordinates | | Measured coordinates | | Difference | | Mean | | Mean-Difference | |
|----|---------------------|-------------|----------------------|-------------|------------|----------|---------|----------|-----------------|----------|
| | E | N | E | N | E | N | E | N | E | N |
| 1 | 445008.287 | 1731812.697 | 445008.299 | 1731812.703 | -0.012 | -0.006 | -0.0005 | -0.02214 | 0.0115 | -0.01614 |
| 2 | 446021.518 | 1732413.269 | 446021.518 | 1732413.269 | 0 | 0 | -0.0005 | -0.02214 | -0.0005 | -0.02214 |
| 3 | 445867.244 | 1730970.767 | 445867.251 | 1730970.773 | -0.007 | -0.006 | -0.0005 | -0.02214 | 0.0065 | -0.01614 |
| 4 | 445962.689 | 1729695.483 | 445962.689 | 1729695.483 | 0 | 0 | -0.0005 | -0.02214 | -0.0005 | -0.02214 |
| 5 | 444620.229 | 1729630.65 | 444620.25 | 1729630.67 | -0.021 | -0.02 | -0.0005 | -0.02214 | 0.0205 | -0.00214 |
| 6 | 444290.074 | 1730882.034 | 444290.098 | 1730882.035 | -0.024 | -0.001 | -0.0005 | -0.02214 | 0.0235 | -0.02114 |
| 7 | 443090.851 | 1730901.975 | 443090.5 | 1730901.99 | 0.351 | -0.015 | -0.0005 | -0.02214 | -0.3515 | -0.00714 |
| 8 | 443057.765 | 1729655.36 | 443057.79 | 1729655.373 | -0.025 | -0.013 | -0.0005 | -0.02214 | 0.0245 | -0.00914 |
| 9 | 441759.126 | 1729756.106 | 441759.126 | 1729756.106 | 0 | 0 | -0.0005 | -0.02214 | -0.0005 | -0.02214 |
| 10 | 441891.378 | 1731122.716 | 441891.42 | 1731122.73 | -0.042 | -0.014 | -0.0005 | -0.02214 | 0.0415 | -0.00814 |
| 11 | 441809.737 | 1732352.571 | 441809.737 | 1732352.571 | 0 | 0 | -0.0005 | -0.02214 | -0.0005 | -0.02214 |
| 12 | 443032.71 | 1732323.238 | 443032.734 | 1732323.263 | -0.024 | -0.025 | -0.0005 | -0.02214 | 0.0235 | 0.002864 |
| 13 | 443917.227 | 1732396.591 | 443917.227 | 1732396.591 | 0 | 0 | -0.0005 | -0.02214 | -0.0005 | -0.02214 |
| 14 | 444806.579 | 1733323.328 | 444806.7 | 1733323.4 | -0.121 | -0.072 | -0.0005 | -0.02214 | 0.1205 | 0.049864 |
| 15 | 445912.219 | 1733500.3 | 445912.231 | 1733500.463 | -0.012 | -0.163 | -0.0005 | -0.02214 | 0.0115 | 0.140864 |
| 16 | 445947.03 | 1734701.255 | 445947.03 | 1734701.255 | 0 | 0 | -0.0005 | -0.02214 | -0.0005 | -0.02214 |
| 17 | 445059.396 | 1734711.685 | 445059.41 | 1734711.698 | -0.014 | -0.013 | -0.0005 | -0.02214 | 0.0135 | -0.00914 |
| 18 | 444138.903 | 1734693.93 | 444138.935 | 1734693.99 | -0.032 | -0.06 | -0.0005 | -0.02214 | 0.0315 | 0.037864 |
| 19 | 443049.354 | 1734671.463 | 443049.365 | 1734671.476 | -0.011 | -0.013 | -0.0005 | -0.02214 | 0.0105 | -0.00914 |
| 20 | 441894.482 | 1734680.846 | 441894.482 | 1734680.846 | 0 | 0 | -0.0005 | -0.02214 | -0.0005 | -0.02214 |
| 21 | 441816.039 | 1733406.768 | 441816.045 | 1733406.778 | -0.006 | -0.01 | -0.0005 | -0.02214 | 0.0055 | -0.01214 |
| 22 | 443057.76 | 1733341.694 | 443057.771 | 1733341.75 | -0.011 | -0.056 | -0.0005 | -0.02214 | 0.0105 | 0.033864 |
| | Mean | | | | -0.0005 | -0.02214 | | | | |

(7) points Affine

| Mean-Difference sqr | | RMSE | | Sigma(E,N) |
|---------------------|-------------|----------|----------|------------|
| E | N | E | N | |
| 0.00013225 | 0.00026037 | 0.080807 | 0.036826 | 0.088802 |
| 0.00000025 | 0.000490002 | | | |
| 4.225E-05 | 0.00026037 | | | |
| 0.00000025 | 0.000490002 | | | |
| 0.00042025 | 4.5625E-06 | | | |
| 0.00055225 | 0.00044673 | | | |
| 0.12355225 | 5.09225E-05 | | | |
| 0.00060025 | 8.34665E-05 | | | |
| 0.00000025 | 0.000490002 | | | |
| 0.00172225 | 6.61945E-05 | | | |
| 0.00000025 | 0.000490002 | | | |
| 0.00055225 | 8.2025E-06 | | | |
| 0.00000025 | 0.000490002 | | | |
| 0.01452025 | 0.002486418 | | | |
| 0.00013225 | 0.019842666 | | | |
| 0.00000025 | 0.000490002 | | | |
| 0.00018225 | 8.34665E-05 | | | |
| 0.00099225 | 0.001433683 | | | |
| 0.00011025 | 8.34665E-05 | | | |
| 0.00000025 | 0.000490002 | | | |
| 3.025E-05 | 0.000147282 | | | |
| 0.00011025 | 0.001146771 | | | |
| 0.1436535 | 0.029834591 | | | |

Continue of table (7) points Affine

| No | Correct coordinates | | Measured coordinates | | Difference | | Mean | | Mean-Difference | |
|----|---------------------|-------------|----------------------|-------------|------------|--------|----------|----------|-----------------|----------|
| | E | N | E | N | E | N | E | N | E | N |
| 1 | 445008.287 | 1731812.697 | 445008.292 | 1731812.697 | -0.005 | 0 | -0.01055 | -0.01341 | -0.005545 | -0.01341 |
| 2 | 446021.518 | 1732413.269 | 446021.518 | 1732413.269 | 0 | 0 | -0.01055 | -0.01341 | -0.010545 | -0.01341 |
| 3 | 445867.244 | 1730970.767 | 445867.244 | 1730970.767 | 0 | 0 | -0.01055 | -0.01341 | -0.010545 | -0.01341 |
| 4 | 445962.689 | 1729695.483 | 445962.689 | 1729695.483 | 0 | 0 | -0.01055 | -0.01341 | -0.010545 | -0.01341 |
| 5 | 444620.229 | 1729630.65 | 444620.24 | 1729630.667 | -0.011 | -0.017 | -0.01055 | -0.01341 | 0.000455 | 0.003591 |
| 6 | 444290.074 | 1730882.034 | 444290.09 | 1730882.027 | -0.016 | 0.007 | -0.01055 | -0.01341 | 0.005455 | -0.02041 |

| | | | | | | | | | | |
|----|------------|-------------|------------|-------------|----------|----------|----------|----------|-----------|----------|
| 7 | 443090.851 | 1730901.975 | 443090.85 | 1730901.96 | 0.001 | 0.015 | -0.01055 | -0.01341 | -0.011545 | -0.02841 |
| 8 | 443057.765 | 1729655.36 | 443057.76 | 1729655.366 | 0.005 | -0.006 | -0.01055 | -0.01341 | -0.015545 | -0.00741 |
| 9 | 441759.126 | 1729756.106 | 441759.126 | 1729756.106 | 0 | 0 | -0.01055 | -0.01341 | -0.010545 | -0.01341 |
| 10 | 441891.378 | 1731122.716 | 441891.39 | 1731122.726 | -0.012 | -0.01 | -0.01055 | -0.01341 | 0.001455 | -0.00341 |
| 11 | 441809.737 | 1732352.571 | 441809.737 | 1732352.571 | 0 | 0 | -0.01055 | -0.01341 | -0.010545 | -0.01341 |
| 12 | 443032.71 | 1732323.238 | 443032.729 | 1732323.257 | -0.019 | -0.019 | -0.01055 | -0.01341 | 0.008455 | 0.005591 |
| 13 | 443917.227 | 1732396.591 | 443917.23 | 1732396.595 | -0.003 | -0.004 | -0.01055 | -0.01341 | -0.007545 | -0.00941 |
| 14 | 444806.579 | 1733323.328 | 444806.695 | 1733323.36 | -0.116 | -0.032 | -0.01055 | -0.01341 | 0.105455 | 0.018591 |
| 15 | 445912.219 | 1733500.3 | 445912.226 | 1733500.45 | -0.007 | -0.15 | -0.01055 | -0.01341 | -0.003545 | 0.136591 |
| 16 | 444138.903 | 1734693.93 | 444138.903 | 1734693.93 | 0 | 0 | -0.01055 | -0.01341 | -0.010545 | -0.01341 |
| 17 | 445059.396 | 1734711.685 | 445059.405 | 1734711.695 | -0.009 | -0.01 | -0.01055 | -0.01341 | -0.001545 | -0.00341 |
| 18 | 444138.903 | 1734693.93 | 444138.93 | 1734693.985 | -0.027 | -0.055 | -0.01055 | -0.01341 | 0.016455 | 0.041591 |
| 19 | 443049.354 | 1734671.463 | 443049.359 | 1734671.471 | -0.005 | -0.008 | -0.01055 | -0.01341 | -0.005545 | -0.00541 |
| 20 | 441894.482 | 1734680.846 | 441894.482 | 1734680.846 | 0 | 0 | -0.01055 | -0.01341 | -0.010545 | -0.01341 |
| 21 | 441816.039 | 1733406.768 | 441816.039 | 1733406.768 | 0 | 0 | -0.01055 | -0.01341 | -0.010545 | -0.01341 |
| 22 | 443057.76 | 1733341.694 | 443057.768 | 1733341.7 | -0.008 | -0.006 | -0.01055 | -0.01341 | -0.002545 | -0.00741 |
| | Mean | | | | -0.01055 | -0.01341 | | | | |

(8) points Affine

| Mean-Difference sqr | | RMSE | | Sigma(E,N) |
|---------------------|-------------|----------|----------|------------|
| E | N | E | N | |
| 3.0747E-05 | 0.000179801 | 0.024214 | 0.033176 | 0.041073 |
| 0.000111197 | 0.000179801 | | | |
| 0.000111197 | 0.000179801 | | | |
| 0.000111197 | 0.000179801 | | | |
| 2.07025E-07 | 1.28953E-05 | | | |
| 2.9757E-05 | 0.000416527 | | | |
| 0.000133287 | 0.000807071 | | | |
| 0.000241647 | 5.48933E-05 | | | |
| 0.000111197 | 0.000179801 | | | |
| 2.11702E-06 | 1.16213E-05 | | | |
| 0.000111197 | 0.000179801 | | | |
| 7.1487E-05 | 3.12593E-05 | | | |
| 5.6927E-05 | 8.85293E-05 | | | |
| 0.011120757 | 0.000345625 | | | |
| 1.2567E-05 | 0.018657101 | | | |
| 0.000111197 | 0.000179801 | | | |
| 2.38702E-06 | 1.16213E-05 | | | |
| 0.000270767 | 0.001729811 | | | |
| 3.0747E-05 | 2.92573E-05 | | | |
| 0.000111197 | 0.000179801 | | | |
| 0.000111197 | 0.000179801 | | | |
| 6.47703E-06 | 5.48933E-05 | | | |
| 0.012899455 | 0.023869318 | | | |

Continue table (8) points Affine

| No | Correct coordinates | | Measured coordinates | | Difference | | Mean | | Mean-Difference | |
|----|---------------------|-------------|----------------------|-------------|------------|-------|----------|----------|-----------------|----------|
| | E | N | E | N | E | N | E | N | E | N |
| 1 | 445008.287 | 1731812.697 | 445008.289 | 1731812.693 | -0.002 | 0.004 | -0.00762 | -0.00719 | -0.005619 | -0.01119 |
| 2 | 446021.518 | 1732413.269 | 446021.518 | 1732413.269 | 0 | 0 | -0.00762 | -0.00719 | -0.007619 | -0.00719 |
| 3 | 445867.244 | 1730970.767 | 445867.244 | 1730970.767 | 0 | 0 | -0.00762 | -0.00719 | -0.007619 | -0.00719 |

| | | | | | | | | | | |
|----|------------|-------------|------------|-------------|----------|----------|----------|----------|-----------|----------|
| 4 | 445962.689 | 1729695.483 | 445962.689 | 1729695.483 | 0 | 0 | -0.00762 | -0.00719 | -0.007619 | -0.00719 |
| 5 | 444620.229 | 1729630.65 | 444620.239 | 1729630.663 | -0.01 | -0.013 | -0.00762 | -0.00719 | 0.002381 | 0.00581 |
| 6 | 444290.074 | 1730882.034 | 444290.08 | 1730882.029 | -0.006 | 0.005 | -0.00762 | -0.00719 | -0.001619 | -0.01219 |
| 7 | 443090.851 | 1730901.975 | 443090.845 | 1730901.91 | 0.006 | 0.065 | -0.00762 | -0.00719 | -0.013619 | -0.07219 |
| 8 | 443057.765 | 1729655.36 | 443057.765 | 1729655.369 | 0 | -0.009 | -0.00762 | -0.00719 | -0.007619 | 0.00181 |
| 9 | 441759.126 | 1729756.106 | 441759.126 | 1729756.106 | 0 | 0 | -0.00762 | -0.00719 | -0.007619 | -0.00719 |
| 10 | 441891.378 | 1731122.716 | 441891.386 | 1731122.72 | -0.008 | -0.004 | -0.00762 | -0.00719 | 0.000381 | -0.00319 |
| 11 | 441809.737 | 1732352.571 | 441809.737 | 1732352.571 | 0 | 0 | -0.00762 | -0.00719 | -0.007619 | -0.00719 |
| 12 | 443032.71 | 1732323.238 | 443032.725 | 1732323.25 | -0.015 | -0.012 | -0.00762 | -0.00719 | 0.007381 | 0.00481 |
| 13 | 443917.227 | 1732396.591 | 443917.227 | 1732396.591 | 0 | 0 | -0.00762 | -0.00719 | -0.007619 | -0.00719 |
| 14 | 444806.579 | 1733323.328 | 444806.69 | 1733323.35 | -0.111 | -0.022 | -0.00762 | -0.00719 | 0.103381 | 0.01481 |
| 15 | 445912.219 | 1733500.3 | 445912.222 | 1733500.4 | -0.003 | -0.1 | -0.00762 | -0.00719 | -0.004619 | 0.09281 |
| 16 | 444138.903 | 1734693.93 | 444138.903 | 1734693.93 | 0 | 0 | -0.00762 | -0.00719 | -0.007619 | -0.00719 |
| 17 | 445059.396 | 1734711.685 | 445059.402 | 1734711.69 | -0.006 | -0.005 | -0.00762 | -0.00719 | -0.001619 | -0.00219 |
| 18 | 444138.903 | 1734693.93 | 444138.9 | 1734693.98 | 0.003 | -0.05 | -0.00762 | -0.00719 | -0.010619 | 0.04281 |
| 19 | 443049.354 | 1734671.463 | 443049.355 | 1734671.469 | -0.001 | -0.006 | -0.00762 | -0.00719 | -0.006619 | -0.00119 |
| 20 | 441894.482 | 1734680.846 | 441894.482 | 1734680.846 | 0 | 0 | -0.00762 | -0.00719 | -0.007619 | -0.00719 |
| 21 | 441816.039 | 1733406.768 | 441816.039 | 1733406.768 | 0 | 0 | -0.00762 | -0.00719 | -0.007619 | -0.00719 |
| 22 | 443057.76 | 1733341.694 | 443057.767 | 1733341.698 | -0.007 | -0.004 | -0.00762 | -0.00719 | -0.000619 | -0.00319 |
| | Mean | | | | -0.00762 | -0.00719 | | | | |

(9) points Affine

| Mean-Difference sqr | | RMSE | | Sigma(E,N) |
|---------------------|-------------|----------|----------|------------|
| E | N | E | N | |
| 6.28766E-05 | 0.000125216 | 0.010123 | 0.027554 | 0.029355 |
| 5.47806E-05 | 5.16961E-05 | | | |
| 5.47806E-05 | 5.16961E-05 | | | |
| 5.47806E-05 | 5.16961E-05 | | | |
| 1.38336E-05 | 3.37561E-05 | | | |
| 1.97356E-05 | 0.000148596 | | | |
| 0.000983156 | 0.005211396 | | | |
| -1.37904E-05 | 3.2761E-06 | | | |
| 5.47806E-05 | 5.16961E-05 | | | |
| -1.21539E-06 | 1.01761E-05 | | | |
| 5.47806E-05 | 5.16961E-05 | | | |
| 3.55026E-05 | 2.31361E-05 | | | |
| 5.47806E-05 | 5.16961E-05 | | | |
| 0.001531073 | 0.000219336 | | | |
| -0.000428689 | 0.008613696 | | | |
| 5.47806E-05 | 5.16961E-05 | | | |
| 3.54561E-06 | 4.7961E-06 | | | |
| -0.000454599 | 0.001832696 | | | |
| 7.87661E-06 | 1.4161E-06 | | | |
| 5.47806E-05 | 5.16961E-05 | | | |
| 5.47806E-05 | 5.16961E-05 | | | |
| 1.97461E-06 | 1.01761E-05 | | | |
| 0.002254304 | 0.016702934 | | | |

Continue table (9) points Affine

| No | Correct coordinates | | Measured coordinates | | Difference | | Mean | | Mean-Difference | |
|----|---------------------|-------------|----------------------|-------------|------------|--------|----------|----------|-----------------|----------|
| | E | N | E | N | E | N | E | N | E | N |
| 1 | 445008.287 | 1731812.697 | 445008.28 | 1731812.691 | 0.007 | 0.006 | 0.000455 | -0.00173 | -0.006545 | -0.00773 |
| 2 | 446021.518 | 1732413.269 | 446021.518 | 1732413.269 | 0 | 0 | 0.000455 | -0.00173 | 0.000455 | -0.00173 |
| 3 | 445867.244 | 1730970.767 | 445867.244 | 1730970.767 | 0 | 0 | 0.000455 | -0.00173 | 0.000455 | -0.00173 |
| 4 | 445962.689 | 1729695.483 | 445962.689 | 1729695.483 | 0 | 0 | 0.000455 | -0.00173 | 0.000455 | -0.00173 |
| 5 | 444620.229 | 1729630.65 | 444620.233 | 1729630.658 | -0.004 | -0.008 | 0.000455 | -0.00173 | 0.004455 | 0.006273 |

| | | | | | | | | | | |
|----|------------|-------------|------------|-------------|----------|----------|----------|----------|-----------|----------|
| 6 | 444290.074 | 1730882.034 | 444290.072 | 1730882.03 | 0.002 | 0.004 | 0.000455 | -0.00173 | -0.001545 | -0.00573 |
| 7 | 443090.851 | 1730901.975 | 443090.85 | 1730901.97 | 0.001 | 0.005 | 0.000455 | -0.00173 | -0.000545 | -0.00673 |
| 8 | 443057.765 | 1729655.36 | 443057.768 | 1729655.364 | -0.003 | -0.004 | 0.000455 | -0.00173 | 0.003455 | 0.002273 |
| 9 | 441759.126 | 1729756.106 | 441759.126 | 1729756.106 | 0 | 0 | 0.000455 | -0.00173 | 0.000455 | -0.00173 |
| 10 | 441891.378 | 1731122.716 | 441891.378 | 1731122.716 | 0 | 0 | 0.000455 | -0.00173 | 0.000455 | -0.00173 |
| 11 | 441809.737 | 1732352.571 | 441809.737 | 1732352.571 | 0 | 0 | 0.000455 | -0.00173 | 0.000455 | -0.00173 |
| 12 | 443032.71 | 1732323.238 | 443032.715 | 1732323.239 | -0.005 | -0.001 | 0.000455 | -0.00173 | 0.005455 | -0.00073 |
| 13 | 443917.227 | 1732396.591 | 443917.229 | 1732396.595 | -0.002 | -0.004 | 0.000455 | -0.00173 | 0.002455 | 0.002273 |
| 14 | 444806.579 | 1733323.328 | 444806.58 | 1733323.33 | -0.001 | -0.002 | 0.000455 | -0.00173 | 0.001455 | 0.000273 |
| 15 | 445912.219 | 1733500.3 | 445912.219 | 1733500.3 | 0 | 0 | 0.000455 | -0.00173 | 0.000455 | -0.00173 |
| 16 | 445947.03 | 1734701.255 | 445947.03 | 1734701.255 | 0 | 0 | 0.000455 | -0.00173 | 0.000455 | -0.00173 |
| 17 | 445059.396 | 1734711.685 | 445059.393 | 1734711.687 | 0.003 | -0.002 | 0.000455 | -0.00173 | -0.002545 | 0.000273 |
| 18 | 444138.903 | 1734693.93 | 444138.905 | 1734693.96 | -0.002 | -0.03 | 0.000455 | -0.00173 | 0.002455 | 0.028273 |
| 19 | 443049.354 | 1734671.463 | 443049.35 | 1734671.464 | 0.004 | -0.001 | 0.000455 | -0.00173 | -0.003545 | -0.00073 |
| 20 | 441894.482 | 1734680.846 | 441894.482 | 1734680.846 | 0 | 0 | 0.000455 | -0.00173 | 0.000455 | -0.00173 |
| 21 | 441816.039 | 1733406.768 | 441816.039 | 1733406.768 | 0 | 0 | 0.000455 | -0.00173 | 0.000455 | -0.00173 |
| 22 | 443057.76 | 1733341.694 | 443057.75 | 1733341.695 | 0.01 | -0.001 | 0.000455 | -0.00173 | -0.009545 | -0.00073 |
| | Mean | | | | 0.000455 | -0.00173 | | | | |

(10) points Affine

| Mean-Difference sqr | | RMSE | | Sigma(E,N) |
|---------------------|-------------|----------|----------|------------|
| E | N | E | N | |
| 4.2837E-05 | 5.97065E-05 | 0.003258 | 0.006804 | 0.007543 |
| 2.07025E-07 | 2.98253E-06 | | | |
| 2.07025E-07 | 2.98253E-06 | | | |
| 2.07025E-07 | 2.98253E-06 | | | |
| 1.9847E-05 | 3.93505E-05 | | | |
| 2.38703E-06 | 3.27985E-05 | | | |
| 2.97025E-07 | 4.52525E-05 | | | |
| 1.1937E-05 | 5.16653E-06 | | | |
| 2.07025E-07 | 2.98253E-06 | | | |
| 2.07025E-07 | 2.98253E-06 | | | |
| 2.07025E-07 | 2.98253E-06 | | | |
| 2.9757E-05 | 5.28529E-07 | | | |
| 6.02702E-06 | 5.16653E-06 | | | |
| 2.11702E-06 | 7.45291E-08 | | | |
| 2.07025E-07 | 2.98253E-06 | | | |
| 2.07025E-07 | 2.98253E-06 | | | |
| 6.47703E-06 | 7.45289E-08 | | | |
| 6.02703E-06 | 0.000799363 | | | |
| 1.2567E-05 | 5.28529E-07 | | | |
| 2.07025E-07 | 2.98253E-06 | | | |
| 2.07025E-07 | 2.98253E-06 | | | |
| 9.1107E-05 | 5.28529E-07 | | | |
| 0.000233455 | 0.001018364 | | | |

Continue of table (10) points Affine

Appendix (B): Polynomial model results

| No | Correct coordinates | | Measured coordinates | | Difference | | Mean | | Mean-Difference | |
|----|---------------------|-------------|----------------------|-------------|------------|--------|----------|----------|-----------------|----------|
| | E | N | E | N | E | N | E | N | E | N |
| 1 | 445008.287 | 1731812.697 | 445008.616 | 1731812.509 | -0.329 | 0.188 | -0.06482 | 0.103227 | 0.26418 | -0.08477 |
| 2 | 446021.518 | 1732413.269 | 446021.831 | 1732412.989 | -0.313 | 0.28 | -0.06482 | 0.103227 | 0.24818 | -0.17677 |
| 3 | 445867.244 | 1730970.767 | 445867.323 | 1730970.929 | -0.079 | -0.162 | -0.06482 | 0.103227 | 0.01418 | 0.265227 |
| 4 | 445962.689 | 1729695.483 | 445962.689 | 1729695.483 | 0 | 0 | -0.06482 | 0.103227 | -0.06482 | 0.103227 |

| | | | | | | | | | | |
|----|------------|-------------|------------|-------------|----------|----------|----------|----------|----------|----------|
| 5 | 444620.229 | 1729630.65 | 444620.582 | 1729629.699 | -0.353 | 0.951 | -0.06482 | 0.103227 | 0.28818 | -0.84777 |
| 6 | 444290.074 | 1730882.034 | 444290.185 | 1730882.186 | -0.111 | -0.152 | -0.06482 | 0.103227 | 0.04618 | 0.255227 |
| 7 | 443090.851 | 1730901.975 | 443090.967 | 1730900.649 | -0.116 | 1.326 | -0.06482 | 0.103227 | 0.05118 | -1.22277 |
| 8 | 443057.765 | 1729655.36 | 443057.759 | 1729655.268 | 0.006 | 0.092 | -0.06482 | 0.103227 | -0.07082 | 0.011227 |
| 9 | 441759.126 | 1729756.106 | 441759.179 | 1729756.148 | -0.053 | -0.042 | -0.06482 | 0.103227 | -0.01182 | 0.145227 |
| 10 | 441891.378 | 1731122.716 | 441891.16 | 1731122.402 | 0.218 | 0.314 | -0.06482 | 0.103227 | -0.28282 | -0.21077 |
| 11 | 441809.737 | 1732352.571 | 441809.68 | 1732352.513 | 0.057 | 0.058 | -0.06482 | 0.103227 | -0.12182 | 0.045227 |
| 12 | 443032.71 | 1732323.238 | 443032.829 | 1732323.401 | -0.119 | -0.163 | -0.06482 | 0.103227 | 0.05418 | 0.266227 |
| 13 | 443917.227 | 1732396.591 | 443917.316 | 1732396.644 | -0.089 | -0.053 | -0.06482 | 0.103227 | 0.02418 | 0.156227 |
| 14 | 444806.579 | 1733323.328 | 444806.822 | 1733323.482 | -0.243 | -0.154 | -0.06482 | 0.103227 | 0.17818 | 0.257227 |
| 15 | 445912.219 | 1733500.3 | 445912.27 | 1733500.398 | -0.051 | -0.098 | -0.06482 | 0.103227 | -0.01382 | 0.201227 |
| 16 | 445947.03 | 1734701.255 | 445947.03 | 1734701.255 | 0 | 0 | -0.06482 | 0.103227 | -0.06482 | 0.103227 |
| 17 | 445059.396 | 1734711.685 | 445059.216 | 1734711.906 | 0.18 | -0.221 | -0.06482 | 0.103227 | -0.24482 | 0.324227 |
| 18 | 444138.903 | 1734693.93 | 444138.796 | 1734693.942 | 0.107 | -0.012 | -0.06482 | 0.103227 | -0.17182 | 0.115227 |
| 19 | 443049.354 | 1734671.463 | 443049.373 | 1734671.465 | -0.019 | -0.002 | -0.06482 | 0.103227 | -0.04582 | 0.105227 |
| 20 | 441894.482 | 1734680.846 | 441894.482 | 1734680.846 | 0 | 0 | -0.06482 | 0.103227 | -0.06482 | 0.103227 |
| 21 | 441816.039 | 1733406.768 | 441816.141 | 1733406.634 | -0.102 | 0.134 | -0.06482 | 0.103227 | 0.03718 | -0.03077 |
| 22 | 443057.76 | 1733341.694 | 443057.777 | 1733341.707 | -0.017 | -0.013 | -0.06482 | 0.103227 | -0.04782 | 0.116227 |
| | Mean | | | | -0.06482 | 0.103227 | | | | |

(3) points polynomial

| Mean-Difference sqr | | RMSE | | Sigma(E,N) |
|---------------------|-------------|----------|----------|------------|
| E | N | E | N | |
| 0.069791072 | 0.007186462 | 0.145017 | 0.358871 | 0.387063 |
| 0.061593312 | 0.031248694 | | | |
| 0.000201072 | 0.070345362 | | | |
| 0.004201632 | 0.010655814 | | | |
| 0.083047712 | 0.718719059 | | | |
| 0.002132592 | 0.065140822 | | | |
| 0.002619392 | 1.49517381 | | | |
| 0.005015472 | 0.000126046 | | | |
| 0.000139712 | 0.021090882 | | | |
| 0.079987152 | 0.044425258 | | | |
| 0.014840112 | 0.002045482 | | | |
| 0.002935472 | 0.070876816 | | | |
| 0.000584672 | 0.024406876 | | | |
| 0.031748112 | 0.06616573 | | | |
| 0.000190992 | 0.040492306 | | | |
| 0.004201632 | 0.010655814 | | | |
| 0.059936832 | 0.105123147 | | | |
| 0.029522112 | 0.013277262 | | | |
| 0.002099472 | 0.011072722 | | | |
| 0.004201632 | 0.010655814 | | | |
| 0.001382352 | 0.000946978 | | | |
| 0.002286752 | 0.013508716 | | | |
| 0.462659273 | 2.833339864 | | | |

Continue of table (3) points polynomial

| No | Correct coordinates | | Measured coordinates | | Difference | | Mean | | Mean-Difference | |
|----|---------------------|-------------|----------------------|-------------|------------|--------|----------|----------|-----------------|----------|
| | E | N | E | N | E | N | E | N | E | N |
| 1 | 445008.287 | 1731812.697 | 445008.261 | 1731812.461 | 0.026 | 0.236 | 0.009545 | 0.009136 | -0.016455 | -0.22686 |
| 2 | 446021.518 | 1732413.269 | 446021.42 | 1732413.344 | 0.098 | -0.075 | 0.009545 | 0.009136 | -0.088455 | 0.084136 |
| 3 | 445867.244 | 1730970.767 | 445867.236 | 1730970.715 | 0.008 | 0.052 | 0.009545 | 0.009136 | 0.001545 | -0.04286 |
| 4 | 445962.689 | 1729695.483 | 445962.689 | 1729695.483 | 0 | 0 | 0.009545 | 0.009136 | 0.009545 | 0.009136 |

| | | | | | | | | | | |
|----|------------|-------------|------------|-------------|----------|----------|----------|----------|-----------|----------|
| 5 | 444620.229 | 1729630.65 | 444620.281 | 1729630.414 | -0.052 | 0.236 | 0.009545 | 0.009136 | 0.061545 | -0.22686 |
| 6 | 444290.074 | 1730882.034 | 444290.187 | 1730882.147 | -0.113 | -0.113 | 0.009545 | 0.009136 | 0.122545 | 0.122136 |
| 7 | 443090.851 | 1730901.975 | 443090.899 | 1730901.943 | -0.048 | 0.032 | 0.009545 | 0.009136 | 0.057545 | -0.02286 |
| 8 | 443057.765 | 1729655.36 | 443057.735 | 1729655.608 | 0.03 | -0.248 | 0.009545 | 0.009136 | -0.020455 | 0.257136 |
| 9 | 441759.126 | 1729756.106 | 441759.126 | 1729756.106 | 0 | 0 | 0.009545 | 0.009136 | 0.009545 | 0.009136 |
| 10 | 441891.378 | 1731122.716 | 441891.395 | 1731122.654 | -0.017 | 0.062 | 0.009545 | 0.009136 | 0.026545 | -0.05286 |
| 11 | 441809.737 | 1732352.571 | 441809.64 | 1732352.565 | 0.097 | 0.006 | 0.009545 | 0.009136 | -0.087455 | 0.003136 |
| 12 | 443032.71 | 1732323.238 | 443032.765 | 1732323.234 | -0.055 | 0.004 | 0.009545 | 0.009136 | 0.064545 | 0.005136 |
| 13 | 443917.227 | 1732396.591 | 443917.17 | 1732396.576 | 0.057 | 0.015 | 0.009545 | 0.009136 | -0.047455 | -0.00586 |
| 14 | 444806.579 | 1733323.328 | 444806.547 | 1733323.433 | 0.032 | -0.105 | 0.009545 | 0.009136 | -0.022455 | 0.114136 |
| 15 | 445912.219 | 1733500.3 | 445912.16 | 1733500.33 | 0.059 | -0.03 | 0.009545 | 0.009136 | -0.049455 | 0.039136 |
| 16 | 445947.03 | 1734701.255 | 445947.03 | 1734701.255 | 0 | 0 | 0.009545 | 0.009136 | 0.009545 | 0.009136 |
| 17 | 445059.396 | 1734711.685 | 445059.37 | 1734711.62 | 0.026 | 0.065 | 0.009545 | 0.009136 | -0.016455 | -0.05586 |
| 18 | 444138.903 | 1734693.93 | 444138.922 | 1734693.946 | -0.019 | -0.016 | 0.009545 | 0.009136 | 0.028545 | 0.025136 |
| 19 | 443049.354 | 1734671.463 | 443049.229 | 1734671.441 | 0.125 | 0.022 | 0.009545 | 0.009136 | -0.115455 | -0.01286 |
| 20 | 441894.482 | 1734680.846 | 441894.482 | 1734680.846 | 0 | 0 | 0.009545 | 0.009136 | 0.009545 | 0.009136 |
| 21 | 441816.039 | 1733406.768 | 441816.087 | 1733406.739 | -0.048 | 0.029 | 0.009545 | 0.009136 | 0.057545 | -0.01986 |
| 22 | 443057.76 | 1733341.694 | 443057.756 | 1733341.665 | 0.004 | 0.029 | 0.009545 | 0.009136 | 0.005545 | -0.01986 |
| | Mean | | | | 0.009545 | 0.009136 | | | | |

(4) points polynomial

| Mean-Difference sqr | | RMSE | | Sigma(E,N) |
|---------------------|-------------|----------|----------|------------|
| E | N | E | N | |
| 0.000270767 | 0.051467275 | 0.054969 | 0.099058 | 0.113288 |
| 0.007824287 | 0.007078866 | | | |
| 2.38702E-06 | 0.001837322 | | | |
| 9.1107E-05 | 8.34665E-05 | | | |

| | | | | |
|-------------|-------------|--|--|--|
| 0.003787787 | 0.051467274 | | | |
| 0.015017277 | 0.014917203 | | | |
| 0.003311427 | 0.000522763 | | | |
| 0.000418407 | 0.066118922 | | | |
| 9.1107E-05 | 8.34665E-05 | | | |
| 0.000704637 | 0.002794602 | | | |
| 0.007648377 | 9.8345E-06 | | | |
| 0.004166057 | 2.63785E-05 | | | |
| 0.002251977 | 3.43865E-05 | | | |
| 0.000504227 | 0.013027026 | | | |
| 0.002445797 | 0.001531626 | | | |
| 9.1107E-05 | 8.34665E-05 | | | |
| 0.000270767 | 0.003120786 | | | |
| 0.000814817 | 0.000631818 | | | |
| 0.013329857 | 0.000165482 | | | |
| 9.1107E-05 | 8.34665E-05 | | | |
| 0.003311427 | 0.000394578 | | | |
| 3.0747E-05 | 0.000394578 | | | |
| 0.066475455 | 0.215874591 | | | |

Continue of table (4) points polynomial

| No | Correct coordinates | | Measured coordinates | | Difference | | Mean | | Mean-Difference | |
|----|---------------------|-------------|----------------------|-------------|------------|--------|----------|---------|-----------------|---------|
| | E | N | E | N | E | N | E | N | E | N |
| 1 | 445008.287 | 1731812.697 | 445008.21 | 1731812.738 | 0.077 | -0.041 | -0.00364 | -0.0055 | -0.08064 | 0.0355 |
| 2 | 446021.518 | 1732413.269 | 446021.548 | 1732413.247 | -0.03 | 0.022 | -0.00364 | -0.0055 | 0.02636 | -0.0275 |
| 3 | 445867.244 | 1730970.767 | 445867.229 | 1730970.74 | 0.015 | 0.027 | -0.00364 | -0.0055 | -0.01864 | -0.0325 |
| 4 | 445962.689 | 1729695.483 | 445962.689 | 1729695.483 | 0 | 0 | -0.00364 | -0.0055 | -0.00364 | -0.0055 |

| | | | | | | | | | | |
|----|------------|-------------|------------|-------------|----------|---------|----------|---------|----------|---------|
| 5 | 444620.229 | 1729630.65 | 444620.223 | 1729630.729 | 0.006 | -0.079 | -0.00364 | -0.0055 | -0.00964 | 0.0735 |
| 6 | 444290.074 | 1730882.034 | 444290.094 | 1730882.171 | -0.02 | -0.137 | -0.00364 | -0.0055 | 0.01636 | 0.1315 |
| 7 | 443090.851 | 1730901.975 | 443090.735 | 1730901.899 | 0.116 | 0.076 | -0.00364 | -0.0055 | -0.11964 | -0.0815 |
| 8 | 443057.765 | 1729655.36 | 443057.796 | 1729655.334 | -0.031 | 0.026 | -0.00364 | -0.0055 | 0.02736 | -0.0315 |
| 9 | 441759.126 | 1729756.106 | 441759.126 | 1729756.106 | 0 | 0 | -0.00364 | -0.0055 | -0.00364 | -0.0055 |
| 10 | 441891.378 | 1731122.716 | 441891.376 | 1731122.783 | 0.002 | -0.067 | -0.00364 | -0.0055 | -0.00564 | 0.0615 |
| 11 | 441809.737 | 1732352.571 | 441809.821 | 1732352.614 | -0.084 | -0.043 | -0.00364 | -0.0055 | 0.08036 | 0.0375 |
| 12 | 443032.71 | 1732323.238 | 443032.783 | 1732323.199 | -0.073 | 0.039 | -0.00364 | -0.0055 | 0.06936 | -0.0445 |
| 13 | 443917.227 | 1732396.591 | 443917.227 | 1732396.591 | 0 | 0 | -0.00364 | -0.0055 | -0.00364 | -0.0055 |
| 14 | 444806.579 | 1733323.328 | 444806.642 | 1733323.271 | -0.063 | 0.057 | -0.00364 | -0.0055 | 0.05936 | -0.0625 |
| 15 | 445912.219 | 1733500.3 | 445912.233 | 1733500.309 | -0.014 | -0.009 | -0.00364 | -0.0055 | 0.01036 | 0.0035 |
| 16 | 445947.03 | 1734701.255 | 445947.03 | 1734701.255 | 0 | 0 | -0.00364 | -0.0055 | -0.00364 | -0.0055 |
| 17 | 445059.396 | 1734711.685 | 445059.377 | 1734711.675 | 0.019 | 0.01 | -0.00364 | -0.0055 | -0.02264 | -0.0155 |
| 18 | 444138.903 | 1734693.93 | 444138.92 | 1734693.944 | -0.017 | -0.014 | -0.00364 | -0.0055 | 0.01336 | 0.0085 |
| 19 | 443049.354 | 1734671.463 | 443049.342 | 1734671.452 | 0.012 | 0.011 | -0.00364 | -0.0055 | -0.01564 | -0.0165 |
| 20 | 441894.482 | 1734680.846 | 441894.482 | 1734680.846 | 0 | 0 | -0.00364 | -0.0055 | -0.00364 | -0.0055 |
| 21 | 441816.039 | 1733406.768 | 441816.049 | 1733406.76 | -0.01 | 0.008 | -0.00364 | -0.0055 | 0.00636 | -0.0135 |
| 22 | 443057.76 | 1733341.694 | 443057.745 | 1733341.701 | 0.015 | -0.007 | -0.00364 | -0.0055 | -0.01864 | 0.0015 |
| | Mean | | | | -0.00364 | -0.0055 | | | | |

(5) points polynomial

| Mean-Difference sqr | | RMSE | | Sigma(E,N) |
|---------------------|------------|---------|----------|------------|
| E | N | E | N | |
| 0.00650281 | 0.00126025 | 0.04226 | 0.045432 | 0.062048 |
| 0.00069485 | 0.00075625 | | | |
| 0.00034745 | 0.00105625 | | | |
| 1.32496E-05 | 0.00003025 | | | |
| 9.29296E-05 | 0.00540225 | | | |
| 0.00026765 | 0.01729225 | | | |
| 0.01431373 | 0.00664225 | | | |
| 0.00074857 | 0.00099225 | | | |
| 1.32496E-05 | 0.00003025 | | | |
| 3.18096E-05 | 0.00378225 | | | |
| 0.00645773 | 0.00140625 | | | |
| 0.00481081 | 0.00198025 | | | |
| 1.32496E-05 | 0.00003025 | | | |
| 0.00352361 | 0.00390625 | | | |
| 0.00010733 | 1.225E-05 | | | |
| 1.32496E-05 | 0.00003025 | | | |
| 0.00051257 | 0.00024025 | | | |
| 0.00017849 | 7.225E-05 | | | |
| 0.00024461 | 0.00027225 | | | |
| 1.32496E-05 | 0.00003025 | | | |
| 4.04496E-05 | 0.00018225 | | | |
| 0.00034745 | 2.25E-06 | | | |
| 0.039289091 | 0.0454095 | | | |

Continue of table (5) points polynomial

| No | Correct coordinates | | Measured coordinates | | Difference | | Mean | | Mean-Difference | |
|----|---------------------|-------------|----------------------|-------------|------------|--------|----------|----------|-----------------|----------|
| | E | N | E | N | E | N | E | N | E | N |
| 1 | 445008.287 | 1731812.697 | 445008.291 | 1731812.705 | -0.004 | -0.008 | 0.000136 | 0.000182 | 0.004136 | 0.008182 |
| 2 | 446021.518 | 1732413.269 | 446021.518 | 1732413.269 | 0 | 0 | 0.000136 | 0.000182 | 0.000136 | 0.000182 |
| 3 | 445867.244 | 1730970.767 | 445867.246 | 1730970.764 | -0.002 | 0.003 | 0.000136 | 0.000182 | 0.002136 | -0.00282 |
| 4 | 445962.689 | 1729695.483 | 445962.689 | 1729695.483 | 0 | 0 | 0.000136 | 0.000182 | 0.000136 | 0.000182 |

| | | | | | | | | | | |
|----|------------|-------------|------------|-------------|----------|----------|----------|----------|-----------|----------|
| 5 | 444620.229 | 1729630.65 | 444620.22 | 1729630.646 | 0.009 | 0.004 | 0.000136 | 0.000182 | -0.008864 | -0.00382 |
| 6 | 444290.074 | 1730882.034 | 444290.076 | 1730882.036 | -0.002 | -0.002 | 0.000136 | 0.000182 | 0.002136 | 0.002182 |
| 7 | 443090.851 | 1730901.975 | 443090.855 | 1730901.971 | -0.004 | 0.004 | 0.000136 | 0.000182 | 0.004136 | -0.00382 |
| 8 | 443057.765 | 1729655.36 | 443057.762 | 1729655.358 | 0.003 | 0.002 | 0.000136 | 0.000182 | -0.002864 | -0.00182 |
| 9 | 441759.126 | 1729756.106 | 441759.126 | 1729756.106 | 0 | 0 | 0.000136 | 0.000182 | 0.000136 | 0.000182 |
| 10 | 441891.378 | 1731122.716 | 441891.377 | 1731122.715 | 0.001 | 0.001 | 0.000136 | 0.000182 | -0.000864 | -0.00082 |
| 11 | 441809.737 | 1732352.571 | 441809.737 | 1732352.571 | 0 | 0 | 0.000136 | 0.000182 | 0.000136 | 0.000182 |
| 12 | 443032.71 | 1732323.238 | 443032.707 | 1732323.235 | 0.003 | 0.003 | 0.000136 | 0.000182 | -0.002864 | -0.00282 |
| 13 | 443917.227 | 1732396.591 | 443917.224 | 1732396.594 | 0.003 | -0.003 | 0.000136 | 0.000182 | -0.002864 | 0.003182 |
| 14 | 444806.579 | 1733323.328 | 444806.578 | 1733323.33 | 0.001 | -0.002 | 0.000136 | 0.000182 | -0.000864 | 0.002182 |
| 15 | 445912.219 | 1733500.3 | 445912.22 | 1733500.301 | -0.001 | -0.001 | 0.000136 | 0.000182 | 0.001136 | 0.001182 |
| 16 | 445947.03 | 1734701.255 | 445947.03 | 1734701.255 | 0 | 0 | 0.000136 | 0.000182 | 0.000136 | 0.000182 |
| 17 | 445059.396 | 1734711.685 | 445059.394 | 1734711.686 | 0.002 | -0.001 | 0.000136 | 0.000182 | -0.001864 | 0.001182 |
| 18 | 444138.903 | 1734693.93 | 444138.907 | 1734693.929 | -0.004 | 0.001 | 0.000136 | 0.000182 | 0.004136 | -0.00082 |
| 19 | 443049.354 | 1734671.463 | 443049.353 | 1734671.462 | 0.001 | 0.001 | 0.000136 | 0.000182 | -0.000864 | -0.00082 |
| 20 | 441894.482 | 1734680.846 | 441894.482 | 1734680.846 | 0 | 0 | 0.000136 | 0.000182 | 0.000136 | 0.000182 |
| 21 | 441816.039 | 1733406.768 | 441816.041 | 1733406.767 | -0.002 | 0.001 | 0.000136 | 0.000182 | 0.002136 | -0.00082 |
| 22 | 443057.76 | 1733341.694 | 443057.761 | 1733341.693 | -0.001 | 0.001 | 0.000136 | 0.000182 | 0.001136 | -0.00082 |
| | Mean | | | | 0.000136 | 0.000182 | | | | |

(6) points polynomial

| Mean-Difference sqr | | RMSE | | Sigma(E,N) |
|---------------------|-------------|----------|----------|------------|
| E | N | E | N | |
| 1.71065E-05 | 6.69451E-05 | 0.002833 | 0.002534 | 0.003801 |
| 1.8496E-08 | 3.3124E-08 | | | |
| 4.5625E-06 | 7.94112E-06 | | | |
| 1.8496E-08 | 3.3124E-08 | | | |

| | | | | |
|-------------|-------------|--|--|--|
| 7.85705E-05 | 1.45771E-05 | | | |
| 4.5625E-06 | 4.76112E-06 | | | |
| 1.71065E-05 | 1.45771E-05 | | | |
| 8.2025E-06 | 3.30512E-06 | | | |
| 1.8496E-08 | 3.3124E-08 | | | |
| 7.46496E-07 | 6.69124E-07 | | | |
| 1.8496E-08 | 3.3124E-08 | | | |
| 8.2025E-06 | 7.94112E-06 | | | |
| 8.2025E-06 | 1.01251E-05 | | | |
| 7.46496E-07 | 4.76112E-06 | | | |
| 1.2905E-06 | 1.39712E-06 | | | |
| 1.8496E-08 | 3.3124E-08 | | | |
| 3.4745E-06 | 1.39712E-06 | | | |
| 1.71065E-05 | 6.69124E-07 | | | |
| 7.46496E-07 | 6.69124E-07 | | | |
| 1.8496E-08 | 3.3124E-08 | | | |
| 4.5625E-06 | 6.69124E-07 | | | |
| 1.2905E-06 | 6.69124E-07 | | | |
| 0.000176591 | 0.000141273 | | | |

Continue table (6) points polynomial

| No | Correct coordinates | | Measured coordinates | | Difference | | Mean | | Mean-Difference | |
|----|---------------------|-------------|----------------------|-------------|------------|--------|----------|-----------|-----------------|-----------|
| | E | N | E | N | E | N | E | N | E | N |
| 1 | 445008.287 | 1731812.697 | 445008.288 | 1731812.694 | -0.001 | 0.003 | 0.000227 | -1.10E-11 | 0.001227 | -3.00E-03 |
| 2 | 446021.518 | 1732413.269 | 446021.518 | 1732413.269 | 0 | 0 | 0.000227 | -1.10E-11 | 0.000227 | -1.10E-11 |
| 3 | 445867.244 | 1730970.767 | 445867.243 | 1730970.769 | 0.001 | -0.002 | 0.000227 | -1.10E-11 | -0.000773 | 2.00E-03 |
| 4 | 445962.689 | 1729695.483 | 445962.689 | 1729695.483 | 0 | 0 | 0.000227 | -1.10E-11 | 0.000227 | -1.10E-11 |

| | | | | | | | | | | |
|----|------------|-------------|------------|-------------|----------|----------|----------|-----------|-----------|-----------|
| 5 | 444620.229 | 1729630.65 | 444620.228 | 1729630.649 | 0.001 | 0.001 | 0.000227 | -1.10E-11 | -0.000773 | -1.00E-03 |
| 6 | 444290.074 | 1730882.034 | 444290.083 | 1730882.036 | -0.009 | -0.002 | 0.000227 | -1.10E-11 | 0.009227 | 2.00E-03 |
| 7 | 443090.851 | 1730901.975 | 443090.85 | 1730901.971 | 0.001 | 0.004 | 0.000227 | -1.10E-11 | -0.000773 | -4.00E-03 |
| 8 | 443057.765 | 1729655.36 | 443057.763 | 1729655.36 | 0.002 | 0 | 0.000227 | -1.10E-11 | -0.001773 | -1.10E-11 |
| 9 | 441759.126 | 1729756.106 | 441759.126 | 1729756.106 | 0 | 0 | 0.000227 | -1.10E-11 | 0.000227 | -1.10E-11 |
| 10 | 441891.378 | 1731122.716 | 441891.376 | 1731122.715 | 0.002 | 0.001 | 0.000227 | -1.10E-11 | -0.001773 | -1.00E-03 |
| 11 | 441809.737 | 1732352.571 | 441809.737 | 1732352.571 | 0 | 0 | 0.000227 | -1.10E-11 | 0.000227 | -1.10E-11 |
| 12 | 443032.71 | 1732323.238 | 443032.71 | 1732323.24 | 0 | -0.002 | 0.000227 | -1.10E-11 | 0.000227 | 2.00E-03 |
| 13 | 443917.227 | 1732396.591 | 443917.227 | 1732396.591 | 0 | 0 | 0.000227 | -1.10E-11 | 0.000227 | -1.10E-11 |
| 14 | 444806.579 | 1733323.328 | 444806.578 | 1733323.329 | 0.001 | -0.001 | 0.000227 | -1.10E-11 | -0.000773 | 1.00E-03 |
| 15 | 445912.219 | 1733500.3 | 445912.218 | 1733500.301 | 0.001 | -0.001 | 0.000227 | -1.10E-11 | -0.000773 | 1.00E-03 |
| 16 | 445947.03 | 1734701.255 | 445947.03 | 1734701.255 | 0 | 0 | 0.000227 | -1.10E-11 | 0.000227 | -1.10E-11 |
| 17 | 445059.396 | 1734711.685 | 445059.395 | 1734711.683 | 0.001 | 0.002 | 0.000227 | -1.10E-11 | -0.000773 | -2.00E-03 |
| 18 | 444138.903 | 1734693.93 | 444138.904 | 1734693.931 | -0.001 | -0.001 | 0.000227 | -1.10E-11 | 0.001227 | 1.00E-03 |
| 19 | 443049.354 | 1734671.463 | 443049.352 | 1734671.464 | 0.002 | -0.001 | 0.000227 | -1.10E-11 | -0.001773 | 1.00E-03 |
| 20 | 441894.482 | 1734680.846 | 441894.482 | 1734680.846 | 0 | 0 | 0.000227 | -1.10E-11 | 0.000227 | -1.10E-11 |
| 21 | 441816.039 | 1733406.768 | 441816.039 | 1733406.769 | 0 | -0.001 | 0.000227 | -1.10E-11 | 0.000227 | 1.00E-03 |
| 22 | 443057.76 | 1733341.694 | 443057.756 | 1733341.694 | 0.004 | 0 | 0.000227 | -1.10E-11 | -0.003773 | -1.10E-11 |
| | Mean | | | | 0.000227 | -1.1E-11 | | | | |

(7) points polynomial

| Mean-Difference sqr | | RMSE | | Sigma(E,N) |
|---------------------|----------|----------|----------|------------|
| E | N | E | N | |
| 1.50553E-06 | 9.00E-06 | 0.002295 | 0.001477 | 0.002729 |
| 5.1529E-08 | 1.21E-22 | | | |
| 5.97529E-07 | 4.00E-06 | | | |
| 5.1529E-08 | 1.21E-22 | | | |
| 5.97529E-07 | 1.00E-06 | | | |
| 8.51375E-05 | 4.00E-06 | | | |
| 5.97529E-07 | 1.60E-05 | | | |
| 3.14353E-06 | 1.21E-22 | | | |
| 5.1529E-08 | 1.21E-22 | | | |
| 3.14353E-06 | 1.00E-06 | | | |
| 5.1529E-08 | 1.21E-22 | | | |
| 5.1529E-08 | 4.00E-06 | | | |
| 5.1529E-08 | 1.21E-22 | | | |
| 5.97529E-07 | 1.00E-06 | | | |
| 5.97529E-07 | 1.00E-06 | | | |
| 5.1529E-08 | 1.21E-22 | | | |
| 5.97529E-07 | 4.00E-06 | | | |
| 1.50553E-06 | 1.00E-06 | | | |
| 3.14353E-06 | 1.00E-06 | | | |
| 5.1529E-08 | 1.21E-22 | | | |
| 5.1529E-08 | 1.00E-06 | | | |
| 1.42355E-05 | 1.21E-22 | | | |
| 0.000115864 | 4.80E-05 | | | |

Continue table (7) points polynomial

| No | Correct coordinates | | Measured coordinates | | Difference | | Mean | | Mean-Difference | |
|----|---------------------|-------------|----------------------|-------------|------------|-------|----------|----------|-----------------|-----------|
| | E | N | E | N | E | N | E | N | E | N |
| 1 | 445008.287 | 1731812.697 | 445008.286 | 1731812.696 | 0.001 | 0.001 | 0.000636 | 4.55E-05 | -0.000364 | -9.54E-04 |
| 2 | 446021.518 | 1732413.269 | 446021.518 | 1732413.269 | 0 | 0 | 0.000636 | 4.55E-05 | 0.000636 | 4.55E-05 |
| 3 | 445867.244 | 1730970.767 | 445867.244 | 1730970.767 | 0 | 0 | 0.000636 | 4.55E-05 | 0.000636 | 4.55E-05 |
| 4 | 445962.689 | 1729695.483 | 445962.689 | 1729695.483 | 0 | 0 | 0.000636 | 4.55E-05 | 0.000636 | 4.55E-05 |
| 5 | 444620.229 | 1729630.65 | 444620.229 | 1729630.649 | 0 | 0.001 | 0.000636 | 4.55E-05 | 0.000636 | -9.54E-04 |
| 6 | 444290.074 | 1730882.034 | 444290.069 | 1730882.034 | 0.005 | 0 | 0.000636 | 4.55E-05 | -0.004364 | 4.55E-05 |

| | | | | | | | | | | |
|----|------------|-------------|------------|-------------|----------|----------|----------|----------|-----------|-----------|
| 7 | 443090.851 | 1730901.975 | 443090.849 | 1730901.976 | 0.002 | -0.001 | 0.000636 | 4.55E-05 | -0.001364 | 1.05E-03 |
| 8 | 443057.765 | 1729655.36 | 443057.764 | 1729655.359 | 0.001 | 0.001 | 0.000636 | 4.55E-05 | -0.000364 | -9.55E-04 |
| 9 | 441759.126 | 1729756.106 | 441759.126 | 1729756.106 | 0 | 0 | 0.000636 | 4.55E-05 | 0.000636 | 4.55E-05 |
| 10 | 441891.378 | 1731122.716 | 441891.377 | 1731122.717 | 0.001 | -0.001 | 0.000636 | 4.55E-05 | -0.000364 | 1.05E-03 |
| 11 | 441809.737 | 1732352.571 | 441809.737 | 1732352.571 | 0 | 0 | 0.000636 | 4.55E-05 | 0.000636 | 4.55E-05 |
| 12 | 443032.71 | 1732323.238 | 443032.708 | 1732323.239 | 0.002 | -0.001 | 0.000636 | 4.55E-05 | -0.001364 | 1.05E-03 |
| 13 | 443917.227 | 17332396.59 | 443917.228 | 17332396.59 | -0.001 | 0.001 | 0.000636 | 4.55E-05 | 0.001636 | -9.54E-04 |
| 14 | 444806.579 | 1733323.328 | 444806.578 | 1733323.327 | 0.001 | 0 | 0.000636 | 4.55E-05 | -0.000364 | 4.55E-05 |
| 15 | 445912.219 | 1733500.3 | 445912.22 | 1733500.299 | -0.001 | 0.001 | 0.000636 | 4.55E-05 | 0.001636 | -9.54E-04 |
| 16 | 444138.903 | 1734693.93 | 444138.903 | 1734693.93 | 0 | 0 | 0.000636 | 4.55E-05 | 0.000636 | 4.55E-05 |
| 17 | 445059.396 | 1734711.685 | 445059.395 | 1734711.684 | 0.001 | 0.001 | 0.000636 | 4.55E-05 | -0.000364 | -9.55E-04 |
| 18 | 444138.903 | 1734693.93 | 444138.901 | 1734693.929 | 0.002 | 0.001 | 0.000636 | 4.55E-05 | -0.001364 | -9.54E-04 |
| 19 | 443049.354 | 1734671.463 | 443049.355 | 1734671.464 | -0.001 | -0.001 | 0.000636 | 4.55E-05 | 0.001636 | 1.05E-03 |
| 20 | 441894.482 | 1734680.846 | 441894.482 | 1734680.846 | 0 | 0 | 0.000636 | 4.55E-05 | 0.000636 | 4.55E-05 |
| 21 | 441816.039 | 1733406.768 | 441816.039 | 1733406.768 | 0 | 0 | 0.000636 | 4.55E-05 | 0.000636 | 4.55E-05 |
| 22 | 443057.76 | 1733341.694 | 443057.759 | 1733341.696 | 0.001 | -0.002 | 0.000636 | 4.55E-05 | -0.000364 | 2.05E-03 |
| | Mean | | | | 0.000636 | 4.55E-05 | | | | |

(8) points polynomial

| Mean-Difference sqr | | RMSE | | Sigma(E,N) |
|---------------------|----------|----------|----------|------------|
| E | N | E | N | |
| 1.32496E-07 | 9.11E-07 | 0.001298 | 0.000824 | 0.001538 |
| 4.04496E-07 | 2.07E-09 | | | |
| 4.04496E-07 | 2.07E-09 | | | |
| 4.04496E-07 | 2.07E-09 | | | |
| 4.04496E-07 | 9.11E-07 | | | |
| 1.90445E-05 | 2.07E-09 | | | |
| 1.8605E-06 | 1.09E-06 | | | |
| 1.32496E-07 | 9.11E-07 | | | |
| 4.04496E-07 | 2.07E-09 | | | |
| 1.32496E-07 | 1.09E-06 | | | |
| 4.04496E-07 | 2.07E-09 | | | |
| 1.8605E-06 | 1.09E-06 | | | |
| 2.6765E-06 | 9.11E-07 | | | |
| 1.32496E-07 | 2.07E-09 | | | |
| 2.6765E-06 | 9.11E-07 | | | |
| 4.04496E-07 | 2.07E-09 | | | |
| 1.32496E-07 | 9.11E-07 | | | |
| 1.8605E-06 | 9.11E-07 | | | |
| 2.6765E-06 | 1.09E-06 | | | |
| 4.04496E-07 | 2.07E-09 | | | |
| 4.04496E-07 | 2.07E-09 | | | |
| 1.32496E-07 | 4.18E-06 | | | |
| 3.70909E-05 | 1.50E-05 | | | |

Continue table (8) points polynomial

| No | Correct coordinates | | Measured coordinates | | Difference | | Mean | | Mean-Difference | |
|----|---------------------|-------------|----------------------|-------------|------------|--------|----------|----------|-----------------|-----------|
| | E | N | E | N | E | N | E | N | E | N |
| 1 | 445008.287 | 1731812.697 | 445008.288 | 1731812.696 | -0.001 | 0.001 | 0.000273 | 4.55E-05 | 0.001273 | -9.54E-04 |
| 2 | 446021.518 | 1732413.269 | 446021.518 | 1732413.269 | 0 | 0 | 0.000273 | 4.55E-05 | 0.000273 | 4.55E-05 |
| 3 | 445867.244 | 1730970.767 | 445867.244 | 1730970.767 | 0 | 0 | 0.000273 | 4.55E-05 | 0.000273 | 4.55E-05 |
| 4 | 445962.689 | 1729695.483 | 445962.689 | 1729695.483 | 0 | 0 | 0.000273 | 4.55E-05 | 0.000273 | 4.55E-05 |
| 5 | 444620.229 | 1729630.65 | 444620.228 | 1729630.65 | 0.001 | 0 | 0.000273 | 4.55E-05 | -0.000727 | 4.55E-05 |
| 6 | 444290.074 | 1730882.034 | 444290.073 | 1730882.035 | 0.001 | -0.001 | 0.000273 | 4.55E-05 | -0.000727 | 1.05E-03 |

| | | | | | | | | | | |
|----|------------|-------------|------------|-------------|----------|----------|----------|----------|-----------|-----------|
| 7 | 443090.851 | 1730901.975 | 443090.85 | 1730901.975 | 0.001 | 0 | 0.000273 | 4.55E-05 | -0.000727 | 4.55E-05 |
| 8 | 443057.765 | 1729655.36 | 443057.764 | 1729655.362 | 0.001 | -0.002 | 0.000273 | 4.55E-05 | -0.000727 | 2.05E-03 |
| 9 | 441759.126 | 1729756.106 | 441759.126 | 1729756.106 | 0 | 0 | 0.000273 | 4.55E-05 | 0.000273 | 4.55E-05 |
| 10 | 441891.378 | 1731122.716 | 441891.378 | 1731122.714 | 0 | 0.002 | 0.000273 | 4.55E-05 | 0.000273 | -1.95E-03 |
| 11 | 441809.737 | 1732352.571 | 441809.737 | 1732352.571 | 0 | 0 | 0.000273 | 4.55E-05 | 0.000273 | 4.55E-05 |
| 12 | 443032.71 | 1732323.238 | 443032.711 | 1732323.237 | -0.001 | 0.001 | 0.000273 | 4.55E-05 | 0.001273 | -9.54E-04 |
| 13 | 444806.579 | 1733323.328 | 444806.579 | 1733323.328 | 0 | 0 | 0.000273 | 4.55E-05 | 0.000273 | 4.55E-05 |
| 14 | 444806.579 | 1733323.328 | 444806.578 | 1733323.329 | 0.001 | -0.001 | 0.000273 | 4.55E-05 | -0.000727 | 1.05E-03 |
| 15 | 445912.219 | 1733500.3 | 445912.219 | 1733500.301 | 0 | -0.001 | 0.000273 | 4.55E-05 | 0.000273 | 1.05E-03 |
| 16 | 444138.903 | 1734693.93 | 444138.903 | 1734693.93 | 0 | 0 | 0.000273 | 4.55E-05 | 0.000273 | 4.55E-05 |
| 17 | 445059.396 | 1734711.685 | 445059.395 | 1734711.684 | 0.001 | 0.001 | 0.000273 | 4.55E-05 | -0.000727 | -9.55E-04 |
| 18 | 444138.903 | 1734693.93 | 444138.902 | 1734693.929 | 0.001 | 0.001 | 0.000273 | 4.55E-05 | -0.000727 | -9.54E-04 |
| 19 | 443049.354 | 1734671.463 | 443049.354 | 1734671.462 | 0 | 0.001 | 0.000273 | 4.55E-05 | 0.000273 | -9.54E-04 |
| 20 | 441894.482 | 1734680.846 | 441894.482 | 1734680.846 | 0 | 0 | 0.000273 | 4.55E-05 | 0.000273 | 4.55E-05 |
| 21 | 441816.039 | 1733406.768 | 441816.039 | 1733406.768 | 0 | 0 | 0.000273 | 4.55E-05 | 0.000273 | 4.55E-05 |
| 22 | 443057.76 | 1733341.694 | 443057.759 | 1733341.695 | 0.001 | -0.001 | 0.000273 | 4.55E-05 | -0.000727 | 1.05E-03 |
| | Mean | | | | 0.000273 | 4.55E-05 | | | | |

(9) points polynomial

| Mean-Difference sqr | | RMSE | | Sigma(E,N) |
|---------------------|----------|----------|----------|------------|
| E | N | E | N | |
| 1.62053E-06 | 9.11E-07 | 0.000617 | 0.000878 | 0.001073 |
| 7.4529E-08 | 2.07E-09 | | | |
| 7.4529E-08 | 2.07E-09 | | | |
| 7.4529E-08 | 2.07E-09 | | | |
| 5.28529E-07 | 2.07E-09 | | | |
| 5.28529E-07 | 1.09E-06 | | | |
| 5.28529E-07 | 2.07E-09 | | | |
| 5.28529E-07 | 4.18E-06 | | | |
| 7.4529E-08 | 2.07E-09 | | | |
| 7.4529E-08 | 3.82E-06 | | | |
| 7.4529E-08 | 2.07E-09 | | | |
| 1.62053E-06 | 9.11E-07 | | | |
| 7.4529E-08 | 2.07E-09 | | | |
| 5.28529E-07 | 1.09E-06 | | | |
| 7.4529E-08 | 1.09E-06 | | | |
| 7.4529E-08 | 2.07E-09 | | | |
| 5.28529E-07 | 9.11E-07 | | | |
| 5.28529E-07 | 9.11E-07 | | | |
| 7.4529E-08 | 9.11E-07 | | | |
| 7.4529E-08 | 2.07E-09 | | | |
| 7.4529E-08 | 2.07E-09 | | | |
| 5.28529E-07 | 1.09E-06 | | | |
| 8.36364E-06 | 1.70E-05 | | | |

Continue table (9) points polynomial

| No | Correct coordinates | | Measured coordinates | | Difference | | Mean | | Mean-Difference | |
|----|---------------------|-------------|----------------------|-------------|------------|-------|----------|----------|-----------------|----------|
| | E | N | E | N | E | N | E | N | E | N |
| 1 | 445008.287 | 1731812.697 | 445008.288 | 1731812.696 | -0.001 | 0.001 | 0.000227 | 0.000227 | 0.001227 | -0.00077 |
| 2 | 446021.518 | 1732413.269 | 446021.518 | 1732413.269 | 0 | 0 | 0.000227 | 0.000227 | 0.000227 | 0.000227 |

| | | | | | | | | | | |
|----|------------|-------------|------------|-------------|----------|----------|----------|----------|-----------|----------|
| 3 | 445867.244 | 1730970.767 | 445867.244 | 1730970.767 | 0 | 0 | 0.000227 | 0.000227 | 0.000227 | 0.000227 |
| 4 | 445962.689 | 1729695.483 | 445962.689 | 1729695.483 | 0 | 0 | 0.000227 | 0.000227 | 0.000227 | 0.000227 |
| 5 | 444620.229 | 1729630.65 | 444620.228 | 1729630.65 | 0.001 | 0 | 0.000227 | 0.000227 | -0.000773 | 0.000227 |
| 6 | 444290.074 | 1730882.034 | 444290.075 | 1730882.034 | -0.001 | 0 | 0.000227 | 0.000227 | 0.001227 | 0.000227 |
| 7 | 443090.851 | 1730901.975 | 443090.851 | 1730901.974 | 0 | 0.001 | 0.000227 | 0.000227 | 0.000227 | -0.00077 |
| 8 | 443057.765 | 1729655.36 | 443057.765 | 1729655.361 | 0 | -0.001 | 0.000227 | 0.000227 | 0.000227 | 0.001227 |
| 9 | 441759.126 | 1729756.106 | 441759.126 | 1729756.106 | 0 | 0 | 0.000227 | 0.000227 | 0.000227 | 0.000227 |
| 10 | 441891.378 | 1731122.716 | 441891.378 | 1731122.716 | 0 | 0 | 0.000227 | 0.000227 | 0.000227 | 0.000227 |
| 11 | 441809.737 | 1732352.571 | 441809.737 | 1732352.571 | 0 | 0 | 0.000227 | 0.000227 | 0.000227 | 0.000227 |
| 12 | 443032.71 | 1732323.238 | 443032.709 | 1732323.237 | 0.001 | 0.001 | 0.000227 | 0.000227 | -0.000773 | -0.00077 |
| 13 | 443917.227 | 1732396.591 | 443917.226 | 1732396.591 | 0.001 | 0 | 0.000227 | 0.000227 | -0.000773 | 0.000227 |
| 14 | 444806.579 | 1733323.328 | 444806.578 | 1733323.327 | 0.001 | 0.001 | 0.000227 | 0.000227 | -0.000773 | -0.00077 |
| 15 | 445912.219 | 1733500.3 | 445912.219 | 1733500.3 | 0 | 0 | 0.000227 | 0.000227 | 0.000227 | 0.000227 |
| 16 | 445947.03 | 1734701.255 | 445947.03 | 1734701.255 | 0 | 0 | 0.000227 | 0.000227 | 0.000227 | 0.000227 |
| 17 | 445059.396 | 1734711.685 | 445059.396 | 1734711.685 | 0 | 0 | 0.000227 | 0.000227 | 0.000227 | 0.000227 |
| 18 | 444138.903 | 1734693.93 | 444138.902 | 1734693.93 | 0.001 | 0 | 0.000227 | 0.000227 | -0.000773 | 0.000227 |
| 19 | 443049.354 | 1734671.463 | 443049.353 | 1734671.462 | 0.001 | 0.001 | 0.000227 | 0.000227 | -0.000773 | -0.00077 |
| 20 | 441894.482 | 1734680.846 | 441894.482 | 1734680.846 | 0 | 0 | 0.000227 | 0.000227 | 0.000227 | 0.000227 |
| 21 | 441816.039 | 1733406.768 | 441816.039 | 1733406.768 | 0 | 0 | 0.000227 | 0.000227 | 0.000227 | 0.000227 |
| 22 | 443057.76 | 1733341.694 | 443057.759 | 1733341.693 | 0.001 | 0.001 | 0.000227 | 0.000227 | -0.000773 | -0.00077 |
| | Mean | | | | 0.000227 | 0.000227 | | | | |

(10) points polynomial

| Mean-Difference sqr | | RMSE | | Sigma(E,N) |
|---------------------|-------------|----------|----------|------------|
| E | N | E | N | |
| 1.50553E-06 | 5.97529E-07 | 0.000598 | 0.000516 | 0.00079 |
| 5.1529E-08 | 5.1529E-08 | | | |
| 5.1529E-08 | 5.1529E-08 | | | |
| 5.1529E-08 | 5.1529E-08 | | | |
| 5.97529E-07 | 5.1529E-08 | | | |
| 1.50553E-06 | 5.1529E-08 | | | |
| 5.1529E-08 | 5.97529E-07 | | | |
| 5.1529E-08 | 1.50553E-06 | | | |
| 5.1529E-08 | 5.1529E-08 | | | |
| 5.1529E-08 | 5.1529E-08 | | | |
| 5.1529E-08 | 5.1529E-08 | | | |
| 5.97529E-07 | 5.97529E-07 | | | |
| 5.97529E-07 | 5.1529E-08 | | | |
| 5.97529E-07 | 5.97529E-07 | | | |
| 5.1529E-08 | 5.1529E-08 | | | |
| 5.1529E-08 | 5.1529E-08 | | | |
| 5.1529E-08 | 5.1529E-08 | | | |
| 5.97529E-07 | 5.1529E-08 | | | |
| 5.97529E-07 | 5.97529E-07 | | | |
| 5.1529E-08 | 5.1529E-08 | | | |
| 5.1529E-08 | 5.1529E-08 | | | |
| 5.97529E-07 | 5.97529E-07 | | | |
| 7.86364E-06 | 5.86364E-06 | | | |

Continue table (10) points polynomial

Appendix (C): Projective model results

| No | Correct coordinates | | Measured coordinates | | Difference | | Mean | | Mean-Difference | |
|----|---------------------|-------------|----------------------|-------------|------------|--------|--------|----------|-----------------|----------|
| | E | N | E | N | E | N | E | N | E | N |
| 1 | 445008.287 | 1731812.697 | 445008.301 | 1731812.71 | -0.014 | -0.013 | -0.012 | -0.01259 | 0.002 | 0.000409 |
| 2 | 446021.518 | 1732413.269 | 446021.521 | 1732413.273 | -0.003 | -0.004 | -0.012 | -0.01259 | -0.009 | -0.00859 |
| 3 | 445867.244 | 1730970.767 | 445867.259 | 1730970.778 | -0.015 | -0.011 | -0.012 | -0.01259 | 0.003 | -0.00159 |
| 4 | 445962.689 | 1729695.483 | 445962.689 | 1729695.483 | 0 | 0 | -0.012 | -0.01259 | -0.012 | -0.01259 |
| 5 | 444620.229 | 1729630.65 | 444620.255 | 1729630.678 | -0.026 | -0.028 | -0.012 | -0.01259 | 0.014 | 0.015409 |
| 6 | 444290.074 | 1730882.034 | 444290.107 | 1730882.056 | -0.033 | -0.022 | -0.012 | -0.01259 | 0.021 | 0.009409 |
| 7 | 443090.851 | 1730901.975 | 443090.875 | 1730901.987 | -0.024 | -0.012 | -0.012 | -0.01259 | 0.012 | -0.00059 |

| | | | | | | | | | | |
|----|------------|-------------|------------|-------------|--------|--------------|--------|----------|--------|----------|
| 8 | 443057.765 | 1729655.36 | 443057.79 | 1729655.378 | -0.025 | -0.018 | -0.012 | -0.01259 | 0.013 | 0.005409 |
| 9 | 441759.126 | 1729756.106 | 441759.126 | 1729756.106 | 0 | 0 | -0.012 | -0.01259 | -0.012 | -0.01259 |
| 10 | 441891.378 | 1731122.716 | 441891.376 | 1731122.736 | 0.002 | -0.02 | -0.012 | -0.01259 | -0.014 | 0.007409 |
| 11 | 441809.737 | 1732352.571 | 441809.74 | 1732352.581 | -0.003 | -0.01 | -0.012 | -0.01259 | -0.009 | -0.00259 |
| 12 | 443032.71 | 1732323.238 | 443032.739 | 1732323.255 | -0.029 | -0.017 | -0.012 | -0.01259 | 0.017 | 0.004409 |
| 13 | 443917.227 | 1732396.591 | 443917.232 | 1732396.598 | -0.005 | -0.007 | -0.012 | -0.01259 | -0.007 | -0.00559 |
| 14 | 444806.579 | 1733323.328 | 444806.575 | 1733323.349 | 0.004 | -0.021 | -0.012 | -0.01259 | -0.016 | 0.008409 |
| 15 | 445912.219 | 1733500.3 | 445912.239 | 1733500.324 | -0.02 | -0.024 | -0.012 | -0.01259 | 0.008 | 0.011409 |
| 16 | 445947.03 | 1734701.255 | 445947.03 | 1734701.255 | 0 | 0 | -0.012 | -0.01259 | -0.012 | -0.01259 |
| 17 | 445059.396 | 1734711.685 | 445059.414 | 1734711.71 | -0.018 | -0.025 | -0.012 | -0.01259 | 0.006 | 0.012409 |
| 18 | 444138.903 | 1734693.93 | 444138.916 | 1734693.941 | -0.013 | -0.011 | -0.012 | -0.01259 | 0.001 | -0.00159 |
| 19 | 443049.354 | 1734671.463 | 443049.369 | 1734671.483 | -0.015 | -0.02 | -0.012 | -0.01259 | 0.003 | 0.007409 |
| 20 | 441894.482 | 1734680.846 | 441894.482 | 1734680.846 | 0 | 0 | -0.012 | -0.01259 | -0.012 | -0.01259 |
| 21 | 441816.039 | 1733406.768 | 441816.048 | 1733406.777 | -0.009 | -0.009 | -0.012 | -0.01259 | -0.003 | -0.00359 |
| 22 | 443057.76 | 1733341.694 | 443057.778 | 1733341.699 | -0.018 | -0.005 | -0.012 | -0.01259 | 0.006 | -0.00759 |
| | Mean | | | | -0.012 | -0.012590909 | | | | |

(4) points projective

| Mean-Difference sqr | | RMSE | | Sigma(E,N) |
|---------------------|-------------|----------|---------|------------|
| E | N | E | N | |
| 4E-06 | 1.67355E-07 | 0.010967 | 0.00869 | 0.013992 |
| 8.1E-05 | 7.38037E-05 | | | |
| 9E-06 | 2.53099E-06 | | | |
| 0.000144 | 0.000158531 | | | |
| 0.000196 | 0.00023744 | | | |
| 0.000441 | 8.8531E-05 | | | |
| 0.000144 | 3.49174E-07 | | | |
| 0.000169 | 2.92583E-05 | | | |
| 0.000144 | 0.000158531 | | | |
| 0.000196 | 5.48946E-05 | | | |
| 8.1E-05 | 6.71281E-06 | | | |
| 0.000289 | 1.94401E-05 | | | |
| 4.9E-05 | 3.12583E-05 | | | |
| 0.000256 | 7.07128E-05 | | | |
| 6.4E-05 | 0.000130167 | | | |
| 0.000144 | 0.000158531 | | | |
| 3.6E-05 | 0.000153986 | | | |
| 1E-06 | 2.53099E-06 | | | |
| 9E-06 | 5.48946E-05 | | | |
| 0.000144 | 0.000158531 | | | |
| 9E-06 | 1.28946E-05 | | | |
| 3.6E-05 | 5.76219E-05 | | | |
| 0.002646 | 0.001661318 | | | |

Continue table (4) points projective

| No | Correct coordinates | | Measured coordinates | | Difference | | Mean | | Mean-Difference | |
|----|---------------------|-------------|----------------------|-------------|------------|--------------|----------|----------|-----------------|----------|
| | E | N | E | N | E | N | E | N | E | N |
| 1 | 445008.287 | 1731812.697 | 445008.299 | 1731812.704 | -0.012 | -0.007 | -0.00977 | -0.01064 | 0.00223 | -0.00364 |
| 2 | 446021.518 | 1732413.269 | 446021.519 | 1732413.271 | -0.001 | -0.002 | -0.00977 | -0.01064 | -0.00877 | -0.00864 |
| 3 | 445867.244 | 1730970.767 | 445867.257 | 1730970.775 | -0.013 | -0.008 | -0.00977 | -0.01064 | 0.00323 | -0.00264 |
| 4 | 445962.689 | 1729695.483 | 445962.689 | 1729695.483 | 0 | 0 | -0.00977 | -0.01064 | -0.00977 | -0.01064 |
| 5 | 444620.229 | 1729630.65 | 444620.254 | 1729630.677 | -0.025 | -0.027 | -0.00977 | -0.01064 | 0.01523 | 0.016364 |
| 6 | 444290.074 | 1730882.034 | 444290.101 | 1730882.054 | -0.027 | -0.02 | -0.00977 | -0.01064 | 0.01723 | 0.009364 |
| 7 | 443090.851 | 1730901.975 | 443090.87 | 1730901.989 | -0.019 | -0.014 | -0.00977 | -0.01064 | 0.00923 | 0.003364 |
| 8 | 443057.765 | 1729655.36 | 443057.789 | 1729655.376 | -0.024 | -0.016 | -0.00977 | -0.01064 | 0.01423 | 0.005364 |
| 9 | 441759.126 | 1729756.106 | 441759.126 | 1729756.106 | 0 | 0 | -0.00977 | -0.01064 | -0.00977 | -0.01064 |
| 10 | 441891.378 | 1731122.716 | 441891.375 | 1731122.734 | 0.003 | -0.018 | -0.00977 | -0.01064 | -0.01277 | 0.007364 |
| 11 | 441809.737 | 1732352.571 | 441809.739 | 1732352.579 | -0.002 | -0.008 | -0.00977 | -0.01064 | -0.00777 | -0.00264 |
| 12 | 443032.71 | 1732323.238 | 443032.735 | 1732323.25 | -0.025 | -0.012 | -0.00977 | -0.01064 | 0.01523 | 0.001364 |
| 13 | 443917.227 | 1732396.591 | 443917.227 | 1732396.591 | 0 | 0 | -0.00977 | -0.01064 | -0.00977 | -0.01064 |
| 14 | 444806.579 | 1733323.328 | 444806.573 | 1733323.347 | 0.006 | -0.019 | -0.00977 | -0.01064 | -0.01577 | 0.008364 |
| 15 | 445912.219 | 1733500.3 | 445912.237 | 1733500.321 | -0.018 | -0.021 | -0.00977 | -0.01064 | 0.00823 | 0.010364 |
| 16 | 445947.03 | 1734701.255 | 445947.03 | 1734701.255 | 0 | 0 | -0.00977 | -0.01064 | -0.00977 | -0.01064 |
| 17 | 445059.396 | 1734711.685 | 445059.41 | 1734711.709 | -0.014 | -0.024 | -0.00977 | -0.01064 | 0.00423 | 0.013364 |
| 18 | 444138.903 | 1734693.93 | 444138.913 | 1734693.939 | -0.01 | -0.009 | -0.00977 | -0.01064 | 0.00023 | -0.00164 |
| 19 | 443049.354 | 1734671.463 | 443049.368 | 1734671.48 | -0.014 | -0.017 | -0.00977 | -0.01064 | 0.00423 | 0.006364 |
| 20 | 441894.482 | 1734680.846 | 441894.482 | 1734680.846 | 0 | 0 | -0.00977 | -0.01064 | -0.00977 | -0.01064 |
| 21 | 441816.039 | 1733406.768 | 441816.044 | 1733406.776 | -0.005 | -0.008 | -0.00977 | -0.01064 | -0.00477 | -0.00264 |
| 22 | 443057.76 | 1733341.694 | 443057.775 | 1733341.698 | -0.015 | -0.004 | -0.00977 | -0.01064 | 0.00523 | -0.00664 |
| | Mean | | | | -0.00977 | -0.010636364 | | | | |

(5) points projective

| Mean-Difference sqr | Mean-Difference sqr | RMSE | RMSE | delta |
|------------------------|------------------------|----------|----------|----------|
| E | N | E | N | |
| 4.9729E-06 | 1.32231E-05 | 0.010099 | 0.008445 | 0.013165 |
| 7.6913E-05 | 7.45868E-05 | | | |
| 1.0433E-05 | 6.95042E-06 | | | |
| 9.5453E-05 | 0.000113132 | | | |
| 0.00023195 | 0.000267769 | | | |
| 0.00029687 | 8.76777E-05 | | | |
| 8.5193E-05 | 1.1314E-05 | | | |
| 0.00020249 | 2.87686E-05 | | | |
| 9.5453E-05 | 0.000113132 | | | |
| 0.00016307 | 5.42231E-05 | | | |
| 6.0373E-05 | 6.95042E-06 | | | |
| 0.00023195 | 1.8595E-06 | | | |
| 9.5453E-05 | 0.000113132 | | | |
| 0.00024869 | 6.99504E-05 | | | |
| 6.7733E-05 | 0.000107405 | | | |
| 9.5453E-05 | 0.000113132 | | | |
| 1.7893E-05 | 0.000178587 | | | |
| 5.29E-08 | 2.67769E-06 | | | |
| 1.7893E-05 | 4.04959E-05 | | | |
| 9.5453E-05 | 0.000113132 | | | |
| 2.2753E-05 | 6.95041E-06 | | | |
| 2.7353E-05 | 4.40413E-05 | | | |
| 0.00224386 | 0.001569091 | | | |

Continue table (5) points projective

| No | Correct coordinates | | Measured coordinates | | Difference | | Mean | | Mean-Difference | |
|----|---------------------|-------------|----------------------|-------------|------------|--------|----------|----------|-----------------|----------|
| | E | N | E | N | E | N | E | N | E | N |
| 1 | 445008.287 | 1731812.697 | 445008.297 | 1731812.702 | -0.01 | -0.005 | -0.00782 | -0.00914 | 0.00218 | -0.00414 |
| 2 | 446021.518 | 1732413.269 | 446021.518 | 1732413.269 | 0 | 0 | -0.00782 | -0.00914 | -0.00782 | -0.00914 |

| | | | | | | | | | | |
|----|------------|-------------|------------|-------------|----------|--------------|----------|----------|----------|----------|
| 3 | 445867.244 | 1730970.767 | 445867.253 | 1730970.77 | -0.009 | -0.003 | -0.00782 | -0.00914 | 0.00118 | -0.00614 |
| 4 | 445962.689 | 1729695.483 | 445962.689 | 1729695.483 | 0 | 0 | -0.00782 | -0.00914 | -0.00782 | -0.00914 |
| 5 | 444620.229 | 1729630.65 | 444620.25 | 1729630.674 | -0.021 | -0.024 | -0.00782 | -0.00914 | 0.01318 | 0.014864 |
| 6 | 444290.074 | 1730882.034 | 444290.099 | 1730882.051 | -0.025 | -0.017 | -0.00782 | -0.00914 | 0.01718 | 0.007864 |
| 7 | 443090.851 | 1730901.975 | 443090.869 | 1730901.988 | -0.018 | -0.013 | -0.00782 | -0.00914 | 0.01018 | 0.003864 |
| 8 | 443057.765 | 1729655.36 | 443057.784 | 1729655.379 | -0.019 | -0.019 | -0.00782 | -0.00914 | 0.01118 | 0.009864 |
| 9 | 441759.126 | 1729756.106 | 441759.126 | 1729756.106 | 0 | 0 | -0.00782 | -0.00914 | -0.00782 | -0.00914 |
| 10 | 441891.378 | 1731122.716 | 441891.374 | 1731122.735 | 0.004 | -0.019 | -0.00782 | -0.00914 | -0.01182 | 0.009864 |
| 11 | 441809.737 | 1732352.571 | 441809.737 | 1732352.571 | 0 | 0 | -0.00782 | -0.00914 | -0.00782 | -0.00914 |
| 12 | 443032.71 | 1732323.238 | 443032.73 | 1732323.249 | -0.02 | -0.011 | -0.00782 | -0.00914 | 0.01218 | 0.001864 |
| 13 | 443917.227 | 1732396.591 | 443917.23 | 1732396.594 | -0.003 | -0.003 | -0.00782 | -0.00914 | -0.00482 | -0.00614 |
| 14 | 444806.579 | 1733323.328 | 444806.572 | 1733323.345 | 0.007 | -0.017 | -0.00782 | -0.00914 | -0.01482 | 0.007864 |
| 15 | 445912.219 | 1733500.3 | 445912.23 | 1733500.319 | -0.011 | -0.019 | -0.00782 | -0.00914 | 0.00318 | 0.009864 |
| 16 | 445947.03 | 1734701.255 | 445947.03 | 1734701.255 | 0 | 0 | -0.00782 | -0.00914 | -0.00782 | -0.00914 |
| 17 | 445059.396 | 1734711.685 | 445059.408 | 1734711.705 | -0.012 | -0.02 | -0.00782 | -0.00914 | 0.00418 | 0.010864 |
| 18 | 444138.903 | 1734693.93 | 444138.911 | 1734693.938 | -0.008 | -0.008 | -0.00782 | -0.00914 | 0.00018 | -0.00114 |
| 19 | 443049.354 | 1734671.463 | 443049.364 | 1734671.478 | -0.01 | -0.015 | -0.00782 | -0.00914 | 0.00218 | 0.005864 |
| 20 | 441894.482 | 1734680.846 | 441894.482 | 1734680.846 | 0 | 0 | -0.00782 | -0.00914 | -0.00782 | -0.00914 |
| 21 | 441816.039 | 1733406.768 | 441816.043 | 1733406.774 | -0.004 | -0.006 | -0.00782 | -0.00914 | -0.00382 | -0.00314 |
| 22 | 443057.76 | 1733341.694 | 443057.773 | 1733341.696 | -0.013 | -0.002 | -0.00782 | -0.00914 | 0.00518 | -0.00714 |
| | Mean | | | | -0.00782 | -0.009136364 | | | | |

(6) points projective

| Mean-Difference sqr | | RMSE | | Sigma(E,N) |
|---------------------|-------------|----------|----------|------------|
| E | N | E | N | |
| 4.7524E-06 | 1.71095E-05 | 0.008726 | 0.008154 | 0.011943 |
| 6.1152E-05 | 8.34731E-05 | | | |
| 1.3924E-06 | 3.7655E-05 | | | |
| 6.1152E-05 | 8.34731E-05 | | | |
| 0.00017371 | 0.000220928 | | | |
| 0.00029515 | 6.18368E-05 | | | |
| 0.00010363 | 1.49277E-05 | | | |
| 0.00012499 | 9.72913E-05 | | | |
| 6.1152E-05 | 8.34731E-05 | | | |
| 0.00013971 | 9.72913E-05 | | | |
| 6.1152E-05 | 8.34731E-05 | | | |
| 0.00014835 | 3.47314E-06 | | | |
| 2.3232E-05 | 3.7655E-05 | | | |
| 0.00021963 | 6.18368E-05 | | | |
| 1.0112E-05 | 9.72913E-05 | | | |
| 6.1152E-05 | 8.34731E-05 | | | |
| 1.7472E-05 | 0.000118019 | | | |
| 3.24E-08 | 1.29132E-06 | | | |
| 4.7524E-06 | 3.43822E-05 | | | |
| 6.1152E-05 | 8.34731E-05 | | | |
| 1.4592E-05 | 9.83678E-06 | | | |
| 2.6832E-05 | 5.09277E-05 | | | |
| 0.00167527 | 0.001462591 | | | |

Continue table (6) points projective

| No | Correct coordinates | | Measured coordinates | | Difference | | Mean | | Mean-Difference | |
|----|---------------------|-------------|----------------------|-------------|------------|--------|----------|----------|-----------------|----------|
| | E | N | E | N | E | N | E | N | E | N |
| 1 | 445008.287 | 1731812.697 | 445008.295 | 1731812.7 | -0.008 | -0.003 | -0.00668 | -0.00786 | 0.00132 | -0.00486 |
| 2 | 446021.518 | 1732413.269 | 446021.518 | 1732413.269 | 0 | 0 | -0.00668 | -0.00786 | -0.00668 | -0.00786 |
| 3 | 445867.244 | 1730970.767 | 445867.25 | 1730970.771 | -0.006 | -0.004 | -0.00668 | -0.00786 | -0.00068 | -0.00386 |
| 4 | 445962.689 | 1729695.483 | 445962.689 | 1729695.483 | 0 | 0 | -0.00668 | -0.00786 | -0.00668 | -0.00786 |

| | | | | | | | | | | |
|----|------------|-------------|------------|-------------|----------|--------------|----------|----------|----------|----------|
| 5 | 444620.229 | 1729630.65 | 444620.249 | 1729630.672 | -0.02 | -0.022 | -0.00668 | -0.00786 | 0.01332 | 0.014136 |
| 6 | 444290.074 | 1730882.034 | 444290.098 | 1730882.049 | -0.024 | -0.015 | -0.00668 | -0.00786 | 0.01732 | 0.007136 |
| 7 | 443090.851 | 1730901.975 | 443090.868 | 1730901.987 | -0.017 | -0.012 | -0.00668 | -0.00786 | 0.01032 | 0.004136 |
| 8 | 443057.765 | 1729655.36 | 443057.782 | 1729655.378 | -0.017 | -0.018 | -0.00668 | -0.00786 | 0.01032 | 0.010136 |
| 9 | 441759.126 | 1729756.106 | 441759.126 | 1729756.106 | 0 | 0 | -0.00668 | -0.00786 | -0.00668 | -0.00786 |
| 10 | 441891.378 | 1731122.716 | 441891.371 | 1731122.732 | 0.007 | -0.016 | -0.00668 | -0.00786 | -0.01368 | 0.008136 |
| 11 | 441809.737 | 1732352.571 | 441809.737 | 1732352.571 | 0 | 0 | -0.00668 | -0.00786 | -0.00668 | -0.00786 |
| 12 | 443032.71 | 1732323.238 | 443032.729 | 1732323.248 | -0.019 | -0.01 | -0.00668 | -0.00786 | 0.01232 | 0.002136 |
| 13 | 443917.227 | 1732396.591 | 443917.227 | 1732396.591 | 0 | 0 | -0.00668 | -0.00786 | -0.00668 | -0.00786 |
| 14 | 444806.579 | 1733323.328 | 444806.572 | 1733323.34 | 0.007 | -0.012 | -0.00668 | -0.00786 | -0.01368 | 0.004136 |
| 15 | 445912.219 | 1733500.3 | 445912.231 | 1733500.318 | -0.012 | -0.018 | -0.00668 | -0.00786 | 0.00532 | 0.010136 |
| 16 | 445947.03 | 1734701.255 | 445947.03 | 1734701.255 | 0 | 0 | -0.00668 | -0.00786 | -0.00668 | -0.00786 |
| 17 | 445059.396 | 1734711.685 | 445059.407 | 1734711.703 | -0.011 | -0.018 | -0.00668 | -0.00786 | 0.00432 | 0.010136 |
| 18 | 444138.903 | 1734693.93 | 444138.909 | 1734693.937 | -0.006 | -0.007 | -0.00668 | -0.00786 | -0.00068 | -0.00086 |
| 19 | 443049.354 | 1734671.463 | 443049.362 | 1734671.476 | -0.008 | -0.013 | -0.00668 | -0.00786 | 0.00132 | 0.005136 |
| 20 | 441894.482 | 1734680.846 | 441894.482 | 1734680.846 | 0 | 0 | -0.00668 | -0.00786 | -0.00668 | -0.00786 |
| 21 | 441816.039 | 1733406.768 | 441816.041 | 1733406.772 | -0.002 | -0.004 | -0.00668 | -0.00786 | -0.00468 | -0.00386 |
| 22 | 443057.76 | 1733341.694 | 443057.771 | 1733341.695 | -0.011 | -0.001 | -0.00668 | -0.00786 | 0.00432 | -0.00686 |
| | Mean | | | | -0.00668 | -0.007863636 | | | | |

(7) points projective

| Mean-Difference sqr | | RMSE | | Sigma(E,N) |
|---------------------|-------------|----------|----------|------------|
| E | N | E | N | |
| 1.7424E-06 | 2.3655E-05 | 0.008583 | 0.007461 | 0.011373 |
| 4.4622E-05 | 6.18368E-05 | | | |
| 4.624E-07 | 1.49277E-05 | | | |
| 4.4622E-05 | 6.18368E-05 | | | |
| 0.00017742 | 0.000199837 | | | |
| 0.00029998 | 5.09277E-05 | | | |
| 0.0001065 | 1.71095E-05 | | | |
| 0.0001065 | 0.000102746 | | | |
| 4.4622E-05 | 6.18368E-05 | | | |
| 0.00018714 | 6.62004E-05 | | | |
| 4.4622E-05 | 6.18368E-05 | | | |
| 0.00015178 | 4.56405E-06 | | | |
| 4.4622E-05 | 6.18368E-05 | | | |
| 0.00018714 | 1.71095E-05 | | | |
| 2.8302E-05 | 0.000102746 | | | |
| 4.4622E-05 | 6.18368E-05 | | | |
| 1.8662E-05 | 0.000102746 | | | |
| 4.624E-07 | 7.45867E-07 | | | |
| 1.7424E-06 | 2.63822E-05 | | | |
| 4.4622E-05 | 6.18368E-05 | | | |
| 2.1902E-05 | 1.49277E-05 | | | |
| 1.8662E-05 | 4.71095E-05 | | | |
| 0.00162077 | 0.001224591 | | | |

Continue table (7) points projective

| No | Correct coordinates | | Read coordinates | | Difference | | Mean | | Mean-Difference | Mean-Difference |
|----|---------------------|-------------|------------------|-------------|------------|---|----------|----------|-----------------|-----------------|
| | E | N | E | N | E | N | E | N | E | N |
| 1 | 445008.287 | 1731812.697 | 445008.291 | 1731812.697 | -0.004 | 0 | -0.00618 | -0.00491 | -0.00218 | -0.00491 |
| 2 | 446021.518 | 1732413.269 | 446021.518 | 1732413.269 | 0 | 0 | -0.00618 | -0.00491 | -0.00618 | -0.00491 |

| | | | | | | | | | | |
|----|------------|-------------|------------|-------------|----------|--------------|----------|----------|----------|----------|
| 3 | 445867.244 | 1730970.767 | 445867.244 | 1730970.767 | 0 | 0 | -0.00618 | -0.00491 | -0.00618 | -0.00491 |
| 4 | 445962.689 | 1729695.483 | 445962.689 | 1729695.483 | 0 | 0 | -0.00618 | -0.00491 | -0.00618 | -0.00491 |
| 5 | 444620.229 | 1729630.65 | 444620.243 | 1729630.669 | -0.014 | -0.019 | -0.00618 | -0.00491 | 0.00782 | 0.014091 |
| 6 | 444290.074 | 1730882.034 | 444290.091 | 1730882.041 | -0.017 | -0.007 | -0.00618 | -0.00491 | 0.01082 | 0.002091 |
| 7 | 443090.851 | 1730901.975 | 443090.862 | 1730901.982 | -0.011 | -0.007 | -0.00618 | -0.00491 | 0.00482 | 0.002091 |
| 8 | 443057.765 | 1729655.36 | 443057.779 | 1729655.371 | -0.014 | -0.011 | -0.00618 | -0.00491 | 0.00782 | 0.006091 |
| 9 | 441759.126 | 1729756.106 | 441759.126 | 1729756.106 | 0 | 0 | -0.00618 | -0.00491 | -0.00618 | -0.00491 |
| 10 | 441891.378 | 1731122.716 | 441891.389 | 1731122.729 | -0.011 | -0.013 | -0.00618 | -0.00491 | 0.00482 | 0.008091 |
| 11 | 441809.737 | 1732352.571 | 441809.737 | 1732352.571 | 0 | 0 | -0.00618 | -0.00491 | -0.00618 | -0.00491 |
| 12 | 443032.71 | 1732323.238 | 443032.724 | 1732323.242 | -0.014 | -0.004 | -0.00618 | -0.00491 | 0.00782 | -0.00091 |
| 13 | 443917.227 | 1732396.591 | 443917.234 | 1732396.603 | -0.007 | -0.012 | -0.00618 | -0.00491 | 0.00082 | 0.007091 |
| 14 | 444806.579 | 1733323.328 | 444806.589 | 1733323.338 | -0.01 | -0.01 | -0.00618 | -0.00491 | 0.00382 | 0.005091 |
| 15 | 445912.219 | 1733500.3 | 445912.228 | 1733500.312 | -0.009 | -0.012 | -0.00618 | -0.00491 | 0.00282 | 0.007091 |
| 16 | 444138.903 | 1734693.93 | 444138.903 | 1734693.93 | 0 | 0 | -0.00618 | -0.00491 | -0.00618 | -0.00491 |
| 17 | 445059.396 | 1734711.685 | 445059.401 | 1734711.69 | -0.005 | -0.005 | -0.00618 | -0.00491 | -0.00118 | 9.09E-05 |
| 18 | 444138.903 | 1734693.93 | 444138.909 | 1734693.932 | -0.006 | -0.002 | -0.00618 | -0.00491 | -0.00018 | -0.00291 |
| 19 | 443049.354 | 1734671.463 | 443049.359 | 1734671.471 | -0.005 | -0.008 | -0.00618 | -0.00491 | -0.00118 | 0.003091 |
| 20 | 441894.482 | 1734680.846 | 441894.482 | 1734680.846 | 0 | 0 | -0.00618 | -0.00491 | -0.00618 | -0.00491 |
| 21 | 441816.039 | 1733406.768 | 441816.039 | 1733406.768 | 0 | 0 | -0.00618 | -0.00491 | -0.00618 | -0.00491 |
| 22 | 443057.76 | 1733341.694 | 443057.769 | 1733341.692 | -0.009 | 0.002 | -0.00618 | -0.00491 | | |
| | Mean | | | | -0.00618 | -0.004909091 | | | | |

(8) points projective

| Mean-Difference sqr | Mean-Difference sqr | RMSE | RMSE | delta |
|------------------------|------------------------|----------|----------|----------|
| E | N | E | N | |
| 4.7524E-06 | 2.40992E-05 | 0.005573 | 0.005527 | 0.007849 |
| 3.8192E-05 | 2.40992E-05 | | | |
| 3.8192E-05 | 2.40992E-05 | | | |
| 3.8192E-05 | 2.40992E-05 | | | |
| 6.1152E-05 | 0.000198554 | | | |
| 0.00011707 | 4.3719E-06 | | | |
| 2.3232E-05 | 4.3719E-06 | | | |
| 6.1152E-05 | 3.70992E-05 | | | |
| 3.8192E-05 | 2.40992E-05 | | | |
| 2.3232E-05 | 6.54628E-05 | | | |
| 3.8192E-05 | 2.40992E-05 | | | |
| 6.1152E-05 | 8.26446E-07 | | | |
| 6.724E-07 | 5.0281E-05 | | | |
| 1.4592E-05 | 2.59174E-05 | | | |
| 7.9524E-06 | 5.0281E-05 | | | |
| 3.8192E-05 | 2.40992E-05 | | | |
| 1.3924E-06 | 8.26443E-09 | | | |
| 3.24E-08 | 8.46281E-06 | | | |
| 1.3924E-06 | 9.55372E-06 | | | |
| 3.8192E-05 | 2.40992E-05 | | | |
| 3.8192E-05 | 2.40992E-05 | | | |
| 0 | 0 | | | |
| 0.00068332 | 0.000672083 | | | |

Continue of table (8) points projective

| No | Correct coordinates | | Measured coordinates | | Difference | | Mean Mean | | Mean-Difference Mean-Difference | |
|----|---------------------|-------------|----------------------|-------------|------------|-------|--------------|----------|------------------------------------|----------|
| | E | N | E | N | E | N | E | N | E | N |
| 1 | 445008.287 | 1731812.697 | 445008.288 | 1731812.695 | -0.001 | 0.002 | -0.00282 | -0.00182 | -0.00182 | -0.00382 |
| 2 | 446021.518 | 1732413.269 | 446021.518 | 1732413.269 | 0 | 0 | -0.00282 | -0.00182 | -0.00282 | -0.00182 |
| 3 | 445867.244 | 1730970.767 | 445867.244 | 1730970.767 | 0 | 0 | -0.00282 | -0.00182 | -0.00282 | -0.00182 |

| | | | | | | | | | | |
|----|------------|-------------|-------------|--------------|----------|--------------|----------|----------|----------|----------|
| 4 | 445962.689 | 1729695.483 | 445962.689 | 1729695.483 | 0 | 0 | -0.00282 | -0.00182 | -0.00282 | -0.00182 |
| 5 | 444620.229 | 1729630.65 | 444620.239 | 1729630.661 | -0.01 | -0.011 | -0.00282 | -0.00182 | 0.00718 | 0.009182 |
| 6 | 444290.074 | 1730882.034 | 444290.079 | 1730882.038 | 0.005 | -0.004 | -0.00282 | -0.00182 | 0.00218 | 0.002182 |
| 7 | 443090.851 | 1730901.975 | 443090.858 | 1730901.979 | -0.007 | -0.004 | -0.00282 | -0.00182 | 0.00418 | 0.002182 |
| 8 | 443057.765 | 1729655.36 | 443057.7706 | 1729655.3605 | 0.003028 | 0.003915 | -0.00282 | -0.00182 | 0.00418 | 0.006182 |
| 9 | 441759.126 | 1729756.106 | 441759.1206 | 1729756.1006 | 0 | 0 | -0.00282 | -0.00182 | -0.00282 | -0.00182 |
| 10 | 441891.378 | 1731122.716 | 441891.3806 | 1731122.7206 | -0.003 | -0.006 | -0.00282 | -0.00182 | 0.00018 | 0.004182 |
| 11 | 441809.737 | 1732352.571 | 441809.7306 | 1732352.5706 | 0 | 0 | -0.00282 | -0.00182 | -0.00282 | -0.00182 |
| 12 | 443032.71 | 1732323.238 | 443032.7105 | 1732323.2305 | -0.008 | 0.002 | -0.00282 | -0.00182 | 0.00518 | -0.00382 |
| 13 | 443917.227 | 1732396.591 | 443917.2206 | 1732396.5906 | 0 | 0 | -0.00282 | -0.00182 | -0.00282 | -0.00182 |
| 14 | 444806.579 | 1733323.328 | 444806.5805 | 1733323.3305 | -0.004 | -0.003 | -0.00282 | -0.00182 | 0.00118 | 0.001182 |
| 15 | 445912.219 | 1733500.3 | 445912.2205 | 1733500.3005 | -0.004 | -0.009 | -0.00282 | -0.00182 | 0.00118 | 0.007182 |
| 16 | 444138.903 | 1734693.93 | 444138.9006 | 1734693.9306 | 0 | 0 | -0.00282 | -0.00182 | -0.00282 | -0.00182 |
| 17 | 445059.396 | 1734711.685 | 445059.3908 | 1734711.6805 | -0.002 | -0.003 | -0.00282 | -0.00182 | -0.00082 | 0.001182 |
| 18 | 444138.903 | 1734693.93 | 444138.9006 | 1734693.9306 | -0.002 | 0.003 | -0.00282 | -0.00182 | -0.00082 | -0.00482 |
| 19 | 443049.354 | 1734671.463 | 443049.3505 | 1734671.4605 | -0.002 | -0.004 | -0.00282 | -0.00182 | -0.00082 | 0.002182 |
| 20 | 441894.482 | 1734680.846 | 441894.4806 | 1734680.8406 | 0 | 0 | -0.00282 | -0.00182 | -0.00282 | -0.00182 |
| 21 | 441816.039 | 1733406.768 | 441816.0306 | 1733406.7606 | 0 | 0 | -0.00282 | -0.00182 | -0.00282 | -0.00182 |
| 22 | 443057.76 | 1733341.694 | 443057.7606 | 1733341.6905 | -0.007 | 0.005 | -0.00282 | -0.00182 | 0.00418 | -0.00682 |
| | Mean | | 7.9524E-06 | 3.30579E-06 | -0.00282 | -0.001818182 | | | | |
| | | | 6.724E-07 | 1.39669E-06 | | | | | | |
| | | | 6.724E-07 | 2.32149E-05 | | | | | | |
| | | | 6.724E-07 | 4.76033E-06 | | | | | | |
| | | | 7.9524E-06 | 3.30579E-06 | | | | | | |
| | | | 7.9524E-06 | 3.30579E-06 | | | | | | |
| | | | 1.7472E-05 | 4.64876E-05 | | | | | | |
| | | | 0.00021527 | 0.000337273 | | | | | | |

(9) points projective

Continue table (9) points projective

| No | Correct coordinates | | Measured coordinates | | Difference | | Mean | | Mean-Difference | |
|----|---------------------|-------------|----------------------|-------------|------------|-------------|---------|----------|-----------------|-----------|
| | E | N | E | N | E | N | E | N | E | N |
| 1 | 445008.287 | 1731812.697 | 445008.283 | 1731812.695 | 0.004 | 0.002 | -0.0005 | 4.55E-05 | -0.0045 | -1.95E-03 |
| 2 | 446021.518 | 1732413.269 | 446021.518 | 1732413.269 | 0 | 0 | -0.0005 | 4.55E-05 | -0.0005 | 4.55E-05 |
| 3 | 445867.244 | 1730970.767 | 445867.244 | 1730970.767 | 0 | 0 | -0.0005 | 4.55E-05 | -0.0005 | 4.55E-05 |
| 4 | 445962.689 | 1729695.483 | 445962.689 | 1729695.483 | 0 | 0 | -0.0005 | 4.55E-05 | -0.0005 | 4.55E-05 |
| 5 | 444620.229 | 1729630.65 | 444620.231 | 1729630.653 | -0.002 | -0.003 | -0.0005 | 4.55E-05 | 0.0015 | 3.05E-03 |
| 6 | 444290.074 | 1730882.034 | 444290.073 | 1730882.03 | 0.001 | 0.004 | -0.0005 | 4.55E-05 | -0.0015 | -3.95E-03 |
| 7 | 443090.851 | 1730901.975 | 443090.852 | 1730901.973 | -0.001 | 0.002 | -0.0005 | 4.55E-05 | 0.0005 | -1.95E-03 |
| 8 | 443057.765 | 1729655.36 | 443057.767 | 1729655.362 | -0.002 | -0.002 | -0.0005 | 4.55E-05 | 0.0015 | 2.05E-03 |
| 9 | 441759.126 | 1729756.106 | 441759.126 | 1729756.106 | 0 | 0 | -0.0005 | 4.55E-05 | -0.0005 | 4.55E-05 |
| 10 | 441891.378 | 1731122.716 | 441891.378 | 1731122.716 | 0 | 0 | -0.0005 | 4.55E-05 | -0.0005 | 4.55E-05 |
| 11 | 441809.737 | 1732352.571 | 441809.737 | 1732352.571 | 0 | 0 | -0.0005 | 4.55E-05 | -0.0005 | 4.55E-05 |
| 12 | 443032.71 | 1732323.238 | 443032.715 | 1732323.237 | -0.005 | 0.001 | -0.0005 | 4.55E-05 | 0.0045 | -9.55E-04 |
| 13 | 443917.227 | 1732396.591 | 443917.228 | 1732396.593 | -0.001 | -0.002 | -0.0005 | 4.55E-05 | 0.0005 | 2.05E-03 |
| 14 | 444806.579 | 1733323.328 | 444806.581 | 1733323.329 | -0.002 | -0.001 | -0.0005 | 4.55E-05 | 0.0015 | 1.05E-03 |
| 15 | 445912.219 | 1733500.3 | 445912.219 | 1733500.3 | 0 | 0 | -0.0005 | 4.55E-05 | -0.0005 | 4.55E-05 |
| 16 | 445947.03 | 1734701.255 | 445947.03 | 1734701.255 | 0 | 0 | -0.0005 | 4.55E-05 | -0.0005 | 4.55E-05 |
| 17 | 445059.396 | 1734711.685 | 445059.395 | 1734711.686 | 0.001 | -0.001 | -0.0005 | 4.55E-05 | -0.0015 | 1.05E-03 |
| 18 | 444138.903 | 1734693.93 | 444138.901 | 1734693.928 | 0.002 | 0.002 | -0.0005 | 4.55E-05 | -0.0025 | -1.95E-03 |
| 19 | 443049.354 | 1734671.463 | 443049.355 | 1734671.465 | -0.001 | -0.002 | -0.0005 | 4.55E-05 | 0.0005 | 2.05E-03 |
| 20 | 441894.482 | 1734680.846 | 441894.482 | 1734680.846 | 0 | 0 | -0.0005 | 4.55E-05 | -0.0005 | 4.55E-05 |
| 21 | 441816.039 | 1733406.768 | 441816.039 | 1733406.768 | 0 | 0 | -0.0005 | 4.55E-05 | -0.0005 | 4.55E-05 |
| 22 | 443057.76 | 1733341.694 | 443057.765 | 1733341.693 | -0.005 | 0.001 | -0.0005 | 4.55E-05 | 0.0045 | -9.55E-04 |
| | Mean | | | | -0.0005 | 4.54545E-05 | | | | |

(10) points projective

| Mean-Difference sqr | Mean-Difference sqr | RMSE | RMSE | delta |
|------------------------|------------------------|----------|----------|----------|
| E | N | E | N | |
| 2.025E-05 | 3.82E-06 | 0.001925 | 0.001551 | 0.002472 |
| 0.00000025 | 2.07E-09 | | | |
| 0.00000025 | 2.07E-09 | | | |
| 0.00000025 | 2.07E-09 | | | |
| 2.25E-06 | 9.27E-06 | | | |
| 2.25E-06 | 1.56E-05 | | | |
| 2.5E-07 | 3.82E-06 | | | |
| 2.25E-06 | 4.18E-06 | | | |
| 0.00000025 | 2.07E-09 | | | |
| 0.00000025 | 2.07E-09 | | | |
| 0.00000025 | 2.07E-09 | | | |
| 2.025E-05 | 9.11E-07 | | | |
| 2.5E-07 | 4.18E-06 | | | |
| 2.25E-06 | 1.09E-06 | | | |
| 0.00000025 | 2.07E-09 | | | |
| 0.00000025 | 2.07E-09 | | | |
| 2.25E-06 | 1.09E-06 | | | |
| 6.25E-06 | 3.82E-06 | | | |
| 2.5E-07 | 4.18E-06 | | | |
| 0.00000025 | 2.07E-09 | | | |
| 0.00000025 | 2.07E-09 | | | |
| 2.025E-05 | 9.11E-07 | | | |
| 8.15E-05 | 5.30E-05 | | | |

Continue table (10) points projective