

PFTII 3A Results (Updated)

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* Note:

| Finger | 01 | 02 | 03 | 06 | 07 | 08 | 01+06 | 02+07 | 03+08 |
|-------------|-------------|-------------|--------------|------------|------------|-------------|----------------------|----------------------|-----------------------|
| Description | Right Thumb | Right Index | Right Middle | Left Thumb | Left Index | Left Middle | Right and Left Thumb | Right and Left Index | Right and Left Middle |

3A 1K Sample Template Size Distribution

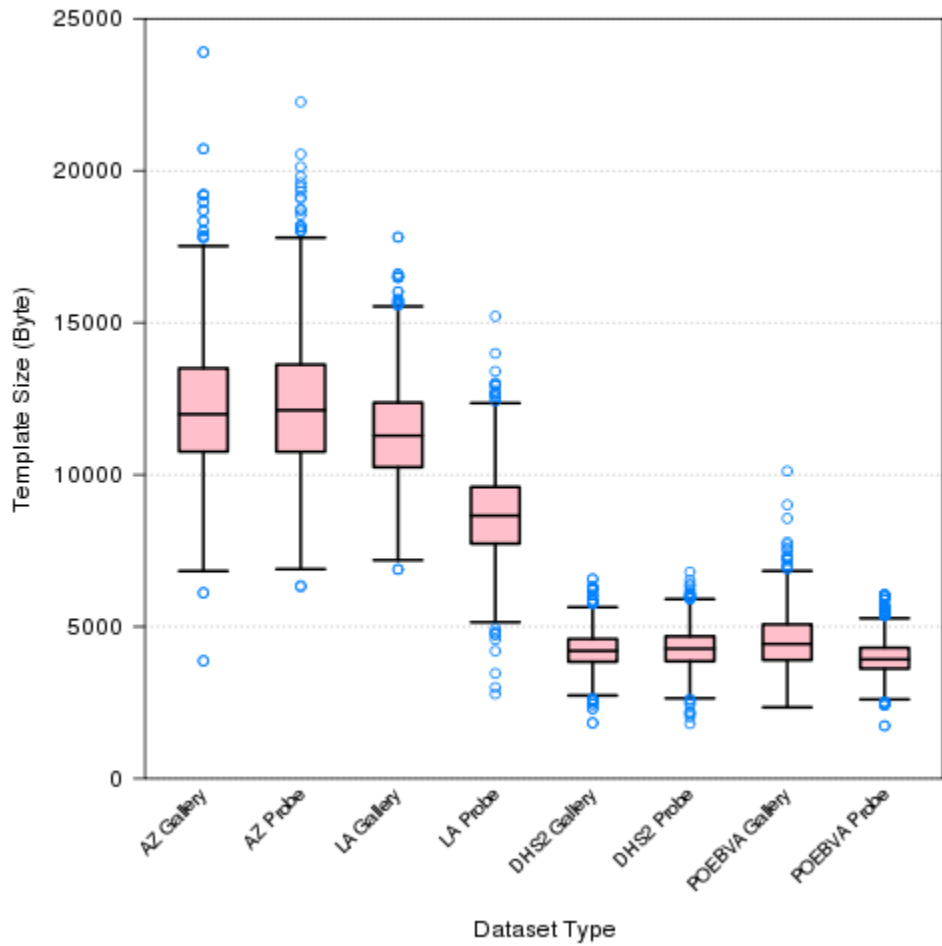


Figure 3A-1

3A Template Size (Byte)

| Dataset | AZ | AZ | LA | LA | DHS2 | DHS2 | POEBVA | POEBVA |
|--------------------|---------|---------|----------|---------|---------|---------|---------|---------|
| Type | Gallery | Probe | Gallery | Probe | Gallery | Probe | Gallery | Probe |
| WidthxHeight (ppi) | 800x800 | 800x800 | 412x1000 | 400x776 | 368x368 | 368x368 | 500x500 | 368x368 |
| Maximum | 23901 | 22262 | 17814 | 15211 | 6566 | 6796 | 10120 | 6050 |
| 75% | 13501 | 13622 | 12371 | 9595 | 4594 | 4683 | 5076 | 4307 |
| Median | 11988 | 12121 | 11283 | 8651 | 4201 | 4275 | 4429 | 3924 |
| 25% | 10758 | 10752 | 10246 | 7730 | 3842 | 3862 | 3901 | 3619 |
| Minimum | 3875 | 6308 | 6883 | 2788 | 1834 | 1808 | 2346 | 1738 |

Table 3A-1

3A 1K sample Enrollment and Comparison time

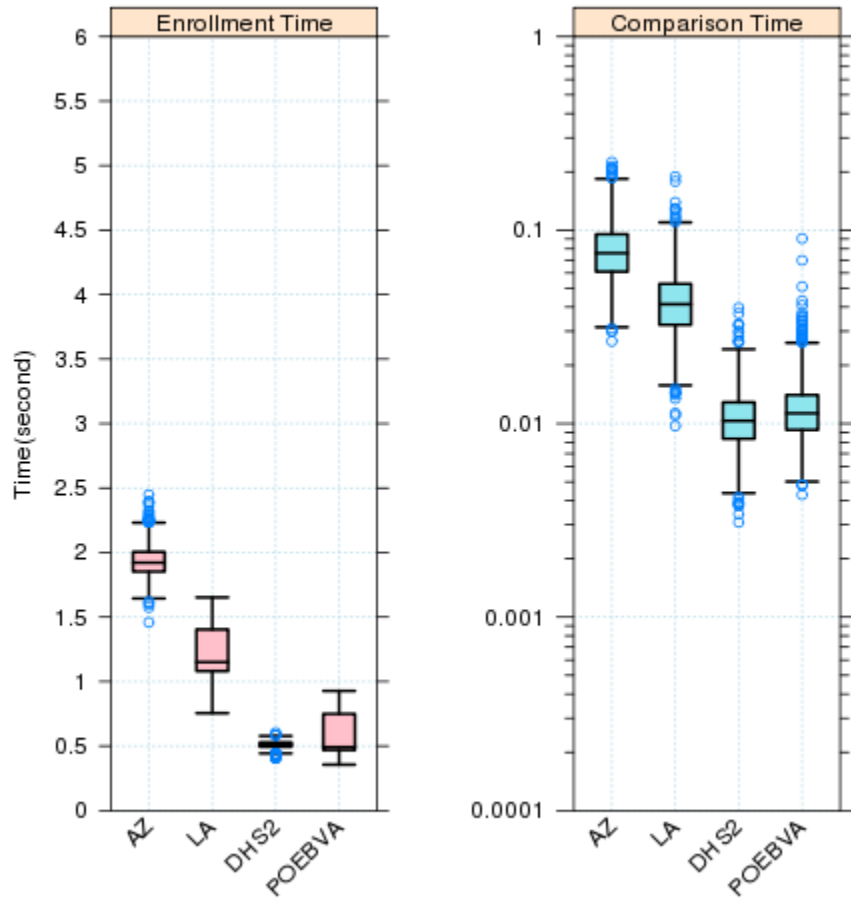


Figure 3A-2

Enrollment Time (second)

| Dataset | AZ | LA | DHS2 | POEBVA |
|---------|--------|--------|--------|--------|
| Maximum | 2.4488 | 1.6522 | 0.6042 | 0.9276 |
| 75% | 2.0047 | 1.4039 | 0.5283 | 0.7493 |
| Median | 1.9216 | 1.1506 | 0.5124 | 0.4918 |
| 25% | 1.8523 | 1.0811 | 0.4942 | 0.4694 |
| Minimum | 1.4591 | 0.7552 | 0.4046 | 0.3557 |

Comparison Time (second)

| Dataset | AZ | LA | DHS2 | POEBVA |
|---------|--------|--------|--------|--------|
| Maximum | 0.2245 | 0.1888 | 0.0397 | 0.0904 |
| 75% | 0.0952 | 0.0527 | 0.0129 | 0.0140 |
| Median | 0.0759 | 0.0414 | 0.0103 | 0.0113 |
| 25% | 0.0609 | 0.0324 | 0.0083 | 0.0093 |
| Minimum | 0.0267 | 0.0097 | 0.0031 | 0.0043 |

Table 3A-2

3A- DET for ALL Datasets (P2P)

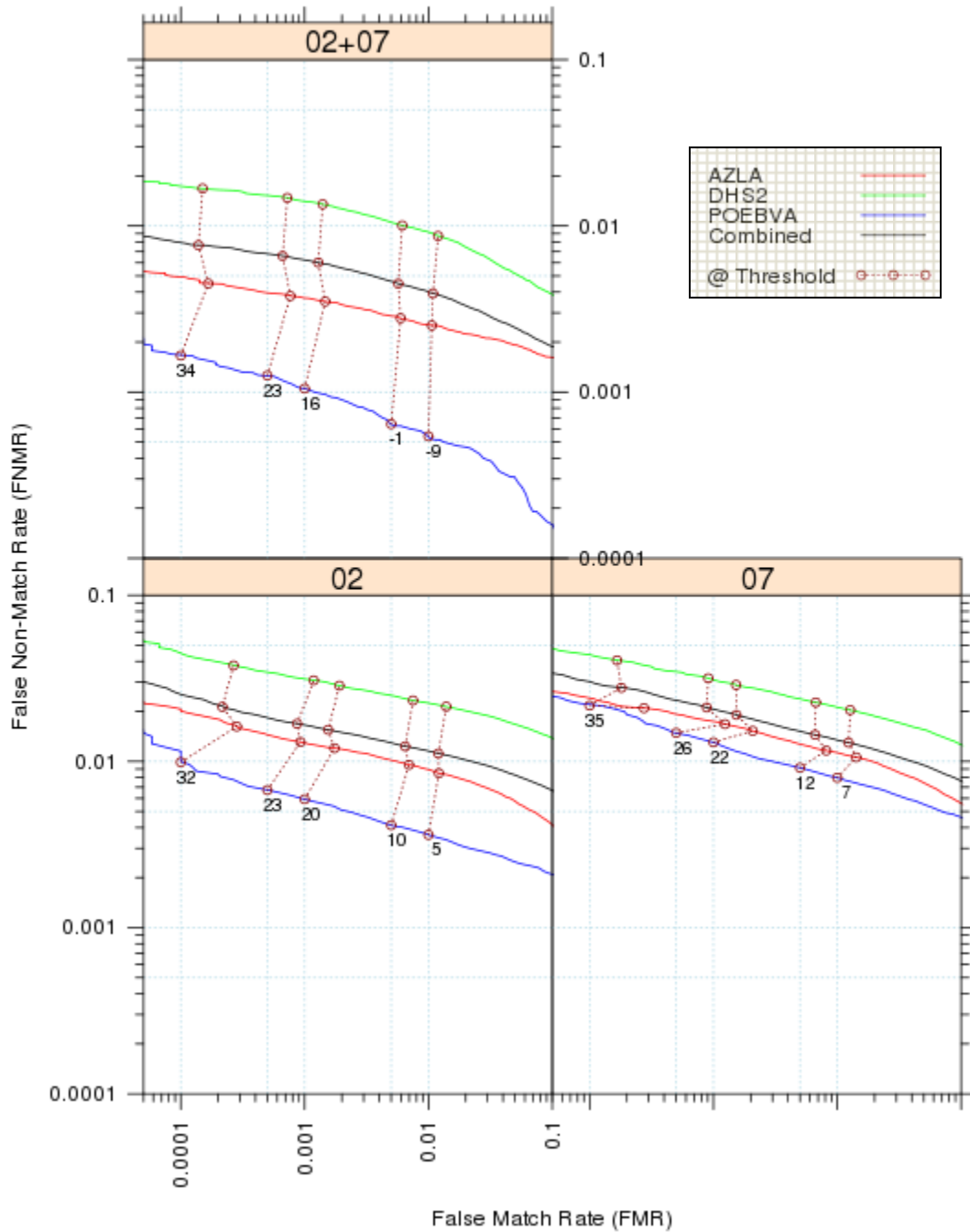


Figure 3A-3

3A- DET for dataset AZLA

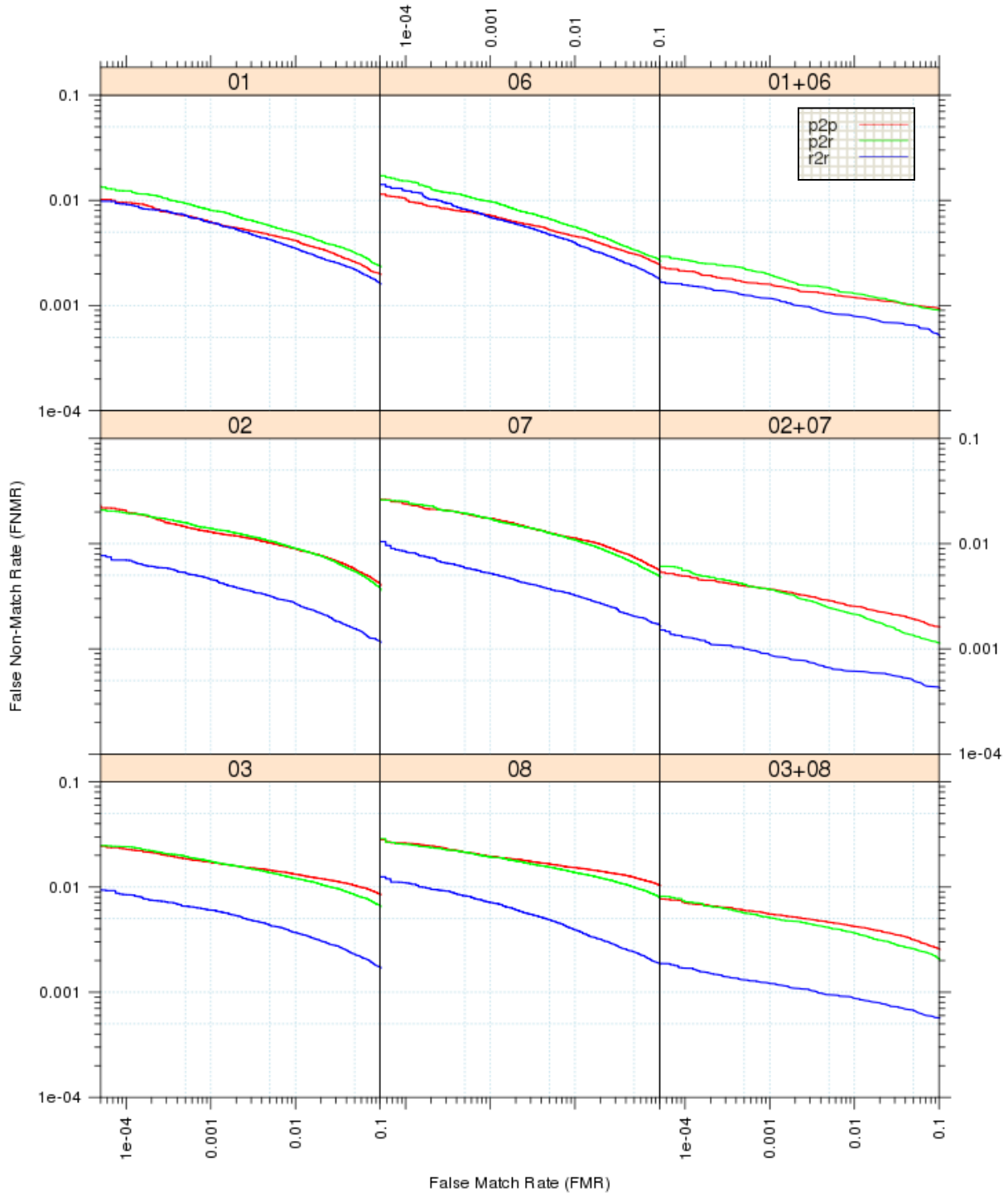


Figure 3A-4

Note: p2p - plain vs. plain; p2r - plain vs. rolled; r2r – rolled vs. rolled.

3A EER and FTE

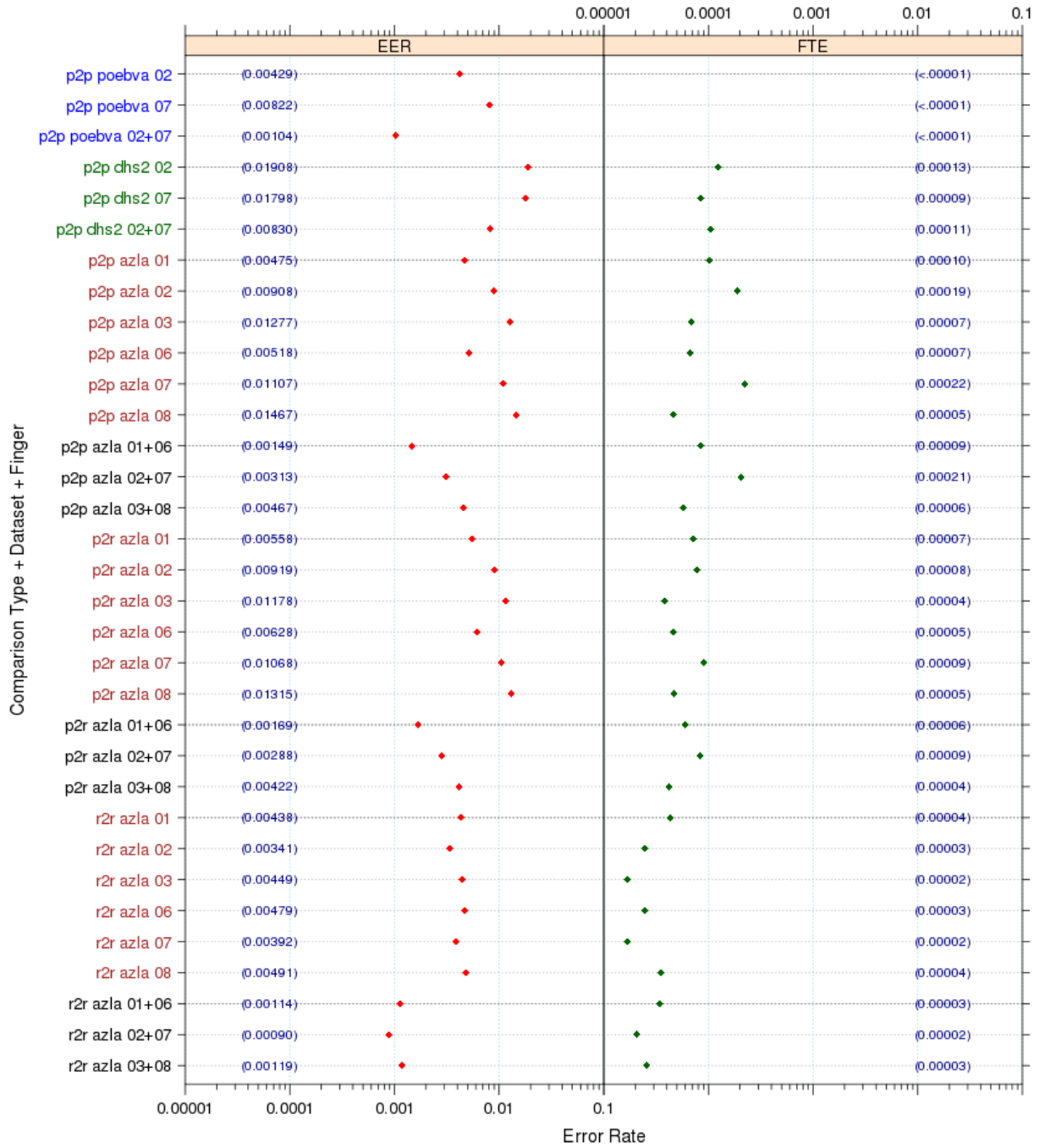


Figure 3A-5

3A - FNMRs @ FMR = .0001 and 95% Confidence Intervals

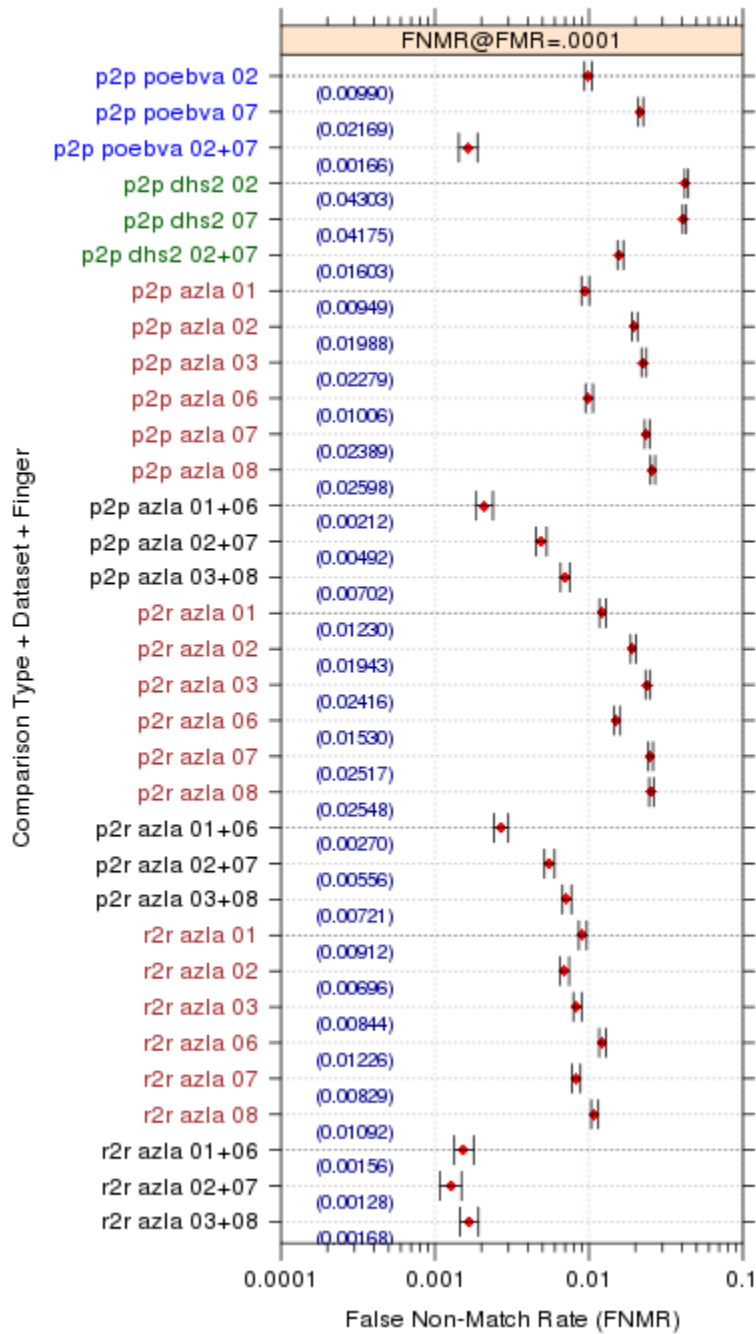


Figure 3A-6

3A- FMRs @ FNMR = (.002, 0.005) and 95% Confidence Intervals

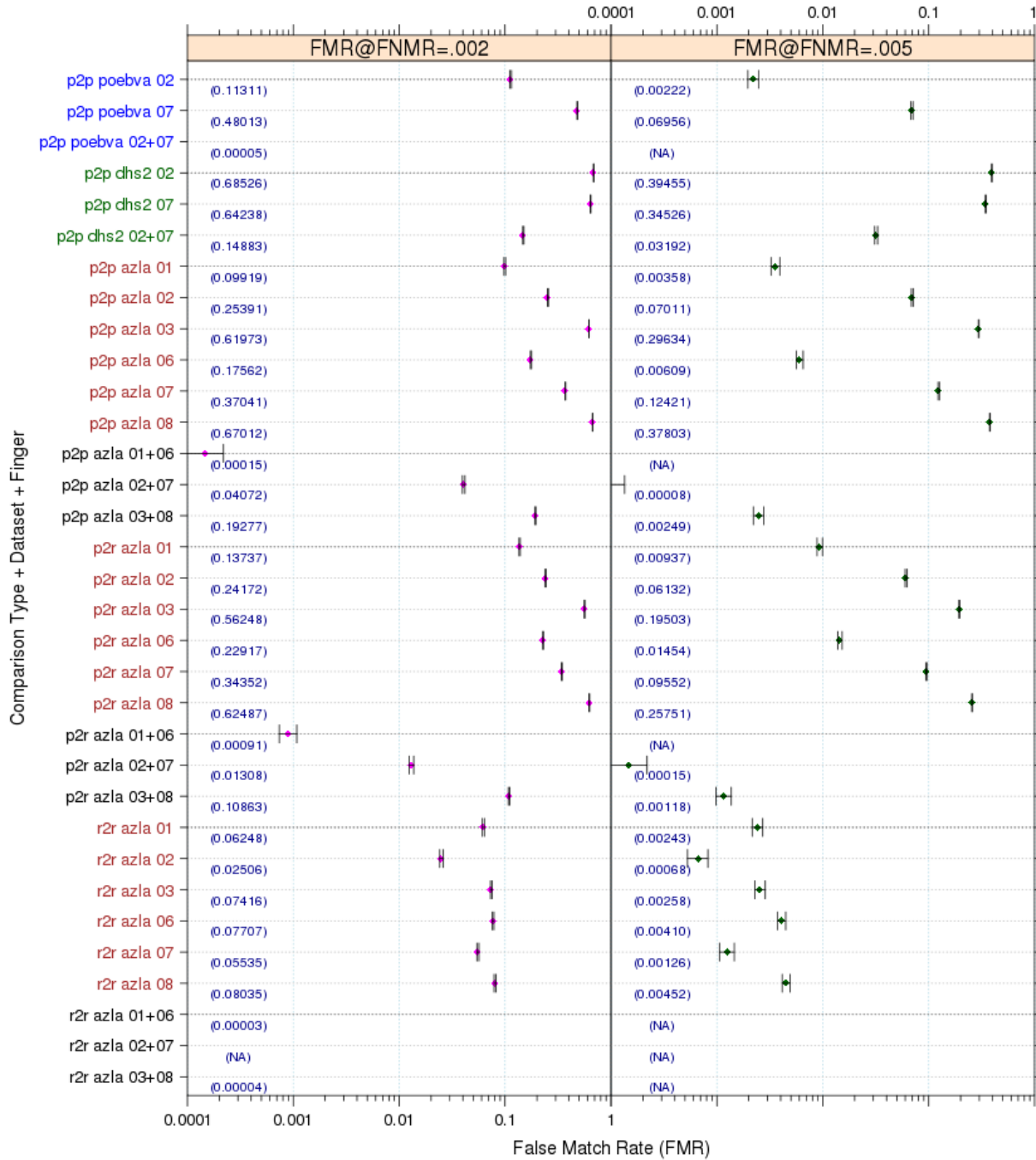


Figure 3A-7

Note: NA – The number couldn't be reliably measured with the current sample size of 120,000.

3A EER and FTE table

| Comparison Type | Dataset | Finger position | EER | FTE Rate | FTE count |
|-----------------|---------|-----------------|----------|----------|-----------|
| p2p | poebva | 02 | 0.004292 | 0.000003 | 1 |
| p2p | poebva | 07 | 0.008225 | 0.000000 | 0 |
| p2p | poebva | 02+07 | 0.001042 | 0.000001 | 1 |
| p2p | dhs2 | 02 | 0.020142 | 0.000125 | 45 |
| p2p | dhs2 | 07 | 0.018942 | 0.000086 | 31 |
| p2p | dhs2 | 02+07 | 0.009308 | 0.000106 | 76 |
| p2p | azla | 01 | 0.004750 | 0.000103 | 37 |
| p2p | azla | 02 | 0.009083 | 0.000192 | 69 |
| p2p | azla | 03 | 0.012767 | 0.000069 | 25 |
| p2p | azla | 06 | 0.005183 | 0.000067 | 24 |
| p2p | azla | 07 | 0.011075 | 0.000225 | 81 |
| p2p | azla | 08 | 0.014667 | 0.000047 | 17 |
| p2p | azla | 01+06 | 0.001492 | 0.000085 | 61 |
| p2p | azla | 02+07 | 0.003125 | 0.000208 | 150 |
| p2p | azla | 03+08 | 0.004667 | 0.000058 | 42 |
| p2r | azla | 01 | 0.005583 | 0.000072 | 26 |
| p2r | azla | 02 | 0.009192 | 0.000078 | 28 |
| p2r | azla | 03 | 0.011783 | 0.000039 | 14 |
| p2r | azla | 06 | 0.006275 | 0.000047 | 17 |
| p2r | azla | 07 | 0.010683 | 0.000092 | 33 |
| p2r | azla | 08 | 0.013150 | 0.000047 | 17 |
| p2r | azla | 01+06 | 0.001692 | 0.000060 | 43 |
| p2r | azla | 02+07 | 0.002883 | 0.000085 | 61 |
| p2r | azla | 03+08 | 0.004217 | 0.000043 | 31 |
| r2r | azla | 01 | 0.004383 | 0.000044 | 16 |
| r2r | azla | 02 | 0.003408 | 0.000025 | 9 |
| r2r | azla | 03 | 0.004492 | 0.000017 | 6 |
| r2r | azla | 06 | 0.004792 | 0.000025 | 9 |
| r2r | azla | 07 | 0.003925 | 0.000017 | 6 |
| r2r | azla | 08 | 0.004908 | 0.000036 | 13 |
| r2r | azla | 01+06 | 0.001142 | 0.000035 | 25 |
| r2r | azla | 02+07 | 0.000900 | 0.000021 | 15 |
| r2r | azla | 03+08 | 0.001192 | 0.000026 | 19 |

Table 3A-3

3A- FNMR @ FMR=0.0001, FMRs @ FNMR = (.002, 0.005) and 95% Confidence Intervals

| Matching Type | Dataset | Finger position | FNMR1@ FMR= 0.0001 | 95% Confidence Interval of FNMR | FMR1 @ FNMR= 0.002 | 95% Confidence Interval of FMR1 | FMR2@ FNMR= 0.005 | 95% Confidence Interval of FMR2 |
|---------------|---------|-----------------|--------------------|---------------------------------|--------------------|---------------------------------|-------------------|---------------------------------|
| p2p | poebva | 02 | 0.00990 | ± 0.00056 | 0.11311 | ± 0.001792 | 0.00223 | ± 0.00026 |
| p2p | poebva | 07 | 0.02169 | ± 0.00082 | 0.48013 | ± 0.002827 | 0.06956 | ± 0.00143 |
| p2p | poebva | 02+07 | 0.00166 | ± 0.00023 | 0.00005 | ± 0.000040 | NA | NA |
| p2p | dhs2 | 02 | 0.04423 | ± 0.00116 | 0.91418 | ± 0.001585 | 0.48573 | ± 0.00282 |
| p2p | dhs2 | 07 | 0.04291 | ± 0.00114 | 0.86804 | ± 0.001915 | 0.44215 | ± 0.00281 |
| p2p | dhs2 | 02+07 | 0.01724 | ± 0.00073 | 0.63236 | ± 0.002728 | 0.05437 | ± 0.00128 |
| p2p | azla | 01 | 0.00949 | ± 0.00055 | 0.09919 | ± 0.001691 | 0.00358 | ± 0.00033 |
| p2p | azla | 02 | 0.01988 | ± 0.00079 | 0.25391 | ± 0.002463 | 0.07011 | ± 0.00144 |
| p2p | azla | 03 | 0.02279 | ± 0.00084 | 0.61973 | ± 0.002747 | 0.29634 | ± 0.00258 |
| p2p | azla | 06 | 0.01006 | ± 0.00057 | 0.17562 | ± 0.002153 | 0.00609 | ± 0.00044 |
| p2p | azla | 07 | 0.02389 | ± 0.00086 | 0.37041 | ± 0.002732 | 0.12421 | ± 0.00186 |
| p2p | azla | 08 | 0.02598 | ± 0.00090 | 0.67012 | ± 0.002660 | 0.37803 | ± 0.00274 |
| p2p | azla | 01+06 | 0.00212 | ± 0.00026 | 0.00015 | ± 0.000069 | NA | NA |
| p2p | azla | 02+07 | 0.00492 | ± 0.00039 | 0.04072 | ± 0.001118 | 0.00008 | ± 0.00005 |
| p2p | azla | 03+08 | 0.00702 | ± 0.00047 | 0.19277 | ± 0.002232 | 0.00249 | ± 0.00028 |
| p2r | azla | 01 | 0.01230 | ± 0.00062 | 0.13738 | ± 0.001948 | 0.00938 | ± 0.00054 |
| p2r | azla | 02 | 0.01943 | ± 0.00078 | 0.24173 | ± 0.002422 | 0.06132 | ± 0.00135 |
| p2r | azla | 03 | 0.02416 | ± 0.00086 | 0.56248 | ± 0.002807 | 0.19503 | ± 0.00224 |
| p2r | azla | 06 | 0.01530 | ± 0.00069 | 0.22917 | ± 0.002378 | 0.01454 | ± 0.00067 |
| p2r | azla | 07 | 0.02517 | ± 0.00088 | 0.34352 | ± 0.002687 | 0.09553 | ± 0.00166 |
| p2r | azla | 08 | 0.02548 | ± 0.00089 | 0.62488 | ± 0.002739 | 0.25751 | ± 0.00247 |
| p2r | azla | 01+06 | 0.00270 | ± 0.00029 | 0.00091 | ± 0.00017 | NA | NA |
| p2r | azla | 02+07 | 0.00556 | ± 0.00042 | 0.01308 | ± 0.000643 | 0.00015 | ± 0.00006 |
| p2r | azla | 03+08 | 0.00721 | ± 0.00047 | 0.10863 | ± 0.001761 | 0.00118 | ± 0.00019 |
| r2r | azla | 01 | 0.00913 | ± 0.00053 | 0.06248 | ± 0.001369 | 0.00243 | ± 0.00027 |
| r2r | azla | 02 | 0.00696 | ± 0.00047 | 0.02506 | ± 0.000884 | 0.00068 | ± 0.00014 |
| r2r | azla | 03 | 0.00844 | ± 0.00051 | 0.07416 | ± 0.001483 | 0.00258 | ± 0.00028 |
| r2r | azla | 06 | 0.01226 | ± 0.00062 | 0.07707 | ± 0.001509 | 0.00410 | ± 0.00036 |
| r2r | azla | 07 | 0.00829 | ± 0.00051 | 0.05535 | ± 0.001294 | 0.00126 | ± 0.00020 |
| r2r | azla | 08 | 0.01092 | ± 0.00058 | 0.08035 | ± 0.001538 | 0.00452 | ± 0.00037 |
| r2r | azla | 01+06 | 0.00156 | ± 0.00022 | 0.00003 | ± 0.000028 | NA | NA |
| r2r | azla | 02+07 | 0.00128 | ± 0.00020 | NA | NA | NA | NA |
| r2r | azla | 03+08 | 0.00168 | ± 0.00023 | 0.00004 | ± 0.000037 | NA | NA |

Table 3A-4

Note: NA – The number couldn't be reliably measured with the current sample size of 120,000..