

## 3B Results (Updated)

03/20/2012

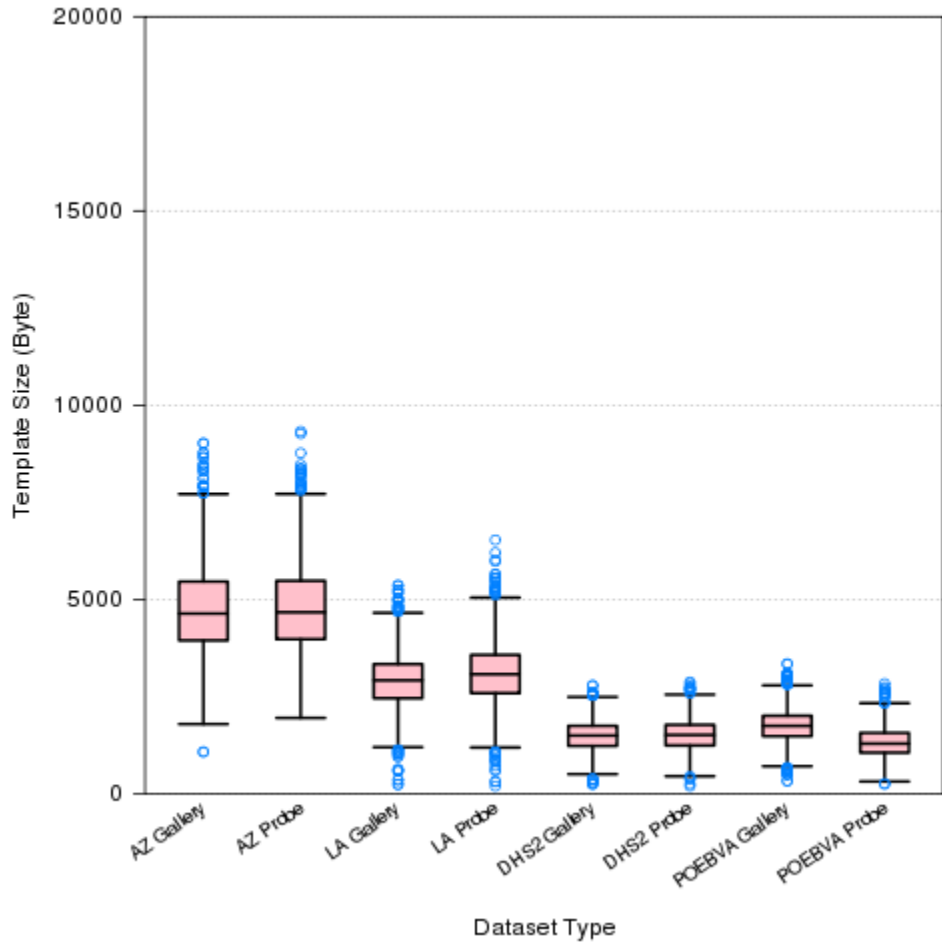
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\* Note:

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

### 3B 1K Sample Template Size Distribution



**Figure 3B-1**

Dataset	AZ	AZ	LA	LA	DHS2	DHS2	POEBVA	POEBVA
Type	Gallery	Probe	Gallery	Probe	Gallery	Probe	Gallery	Probe
Width x Height (ppi)	800x800	800x800	412x1000	400x776	368x368	368x368	500x500	368x368
Maximum	9018	9324	5360	6529	2782	2872	3339	2830
75%	5458	5477	3333	3569	1743	1769	2003	1562
Median	4633	4666	2914	3072	1492	1507	1742	1284
25%	3941	3973	2452	2584	1225	1237	1475	1052
Minimum	1072	1946	233	191	240	191	326	241

**Table 3B-1**

### 3B 1K sample Enrollment and Comparison time

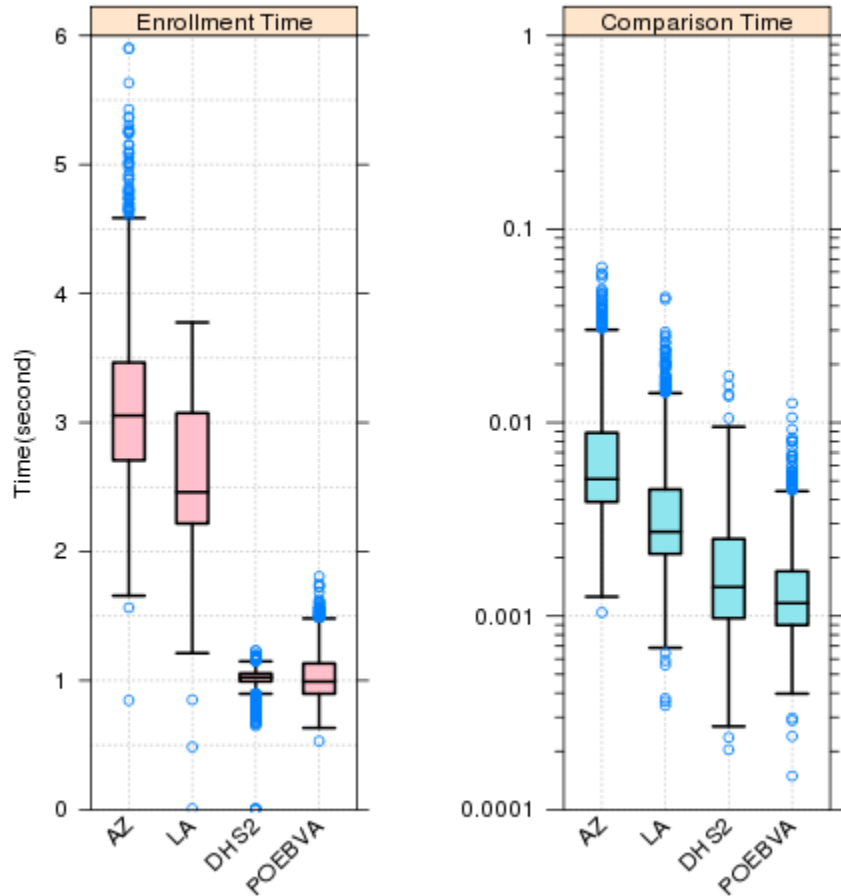


Figure 3B-2

**Enrollment Time (second)**

Dataset	AZ	LA	DHS2	POEBVA
Maximum	5.9013	3.7762	1.2305	1.8059
75%	3.4654	3.0734	1.0557	1.1325
Median	3.0539	2.4603	1.0260	0.9923
25%	2.7068	2.2169	0.9924	0.8975
Minimum	0.8461	0.0056	0.0027	0.5310

**Comparison Time (second)**

Dataset	AZ	LA	DHS2	POEBVA
Maximum	0.06350	0.04454	0.0174	0.0126
75%	0.00885	0.00451	0.0025	0.0017
Median	0.00511	0.00273	0.0014	0.0012
25%	0.00389	0.00209	0.0010	0.0009
Minimum	0.00104	0.00035	0.0002	0.0001

Table 3B-2

### 3B- DET for ALL Datasets (P2P)

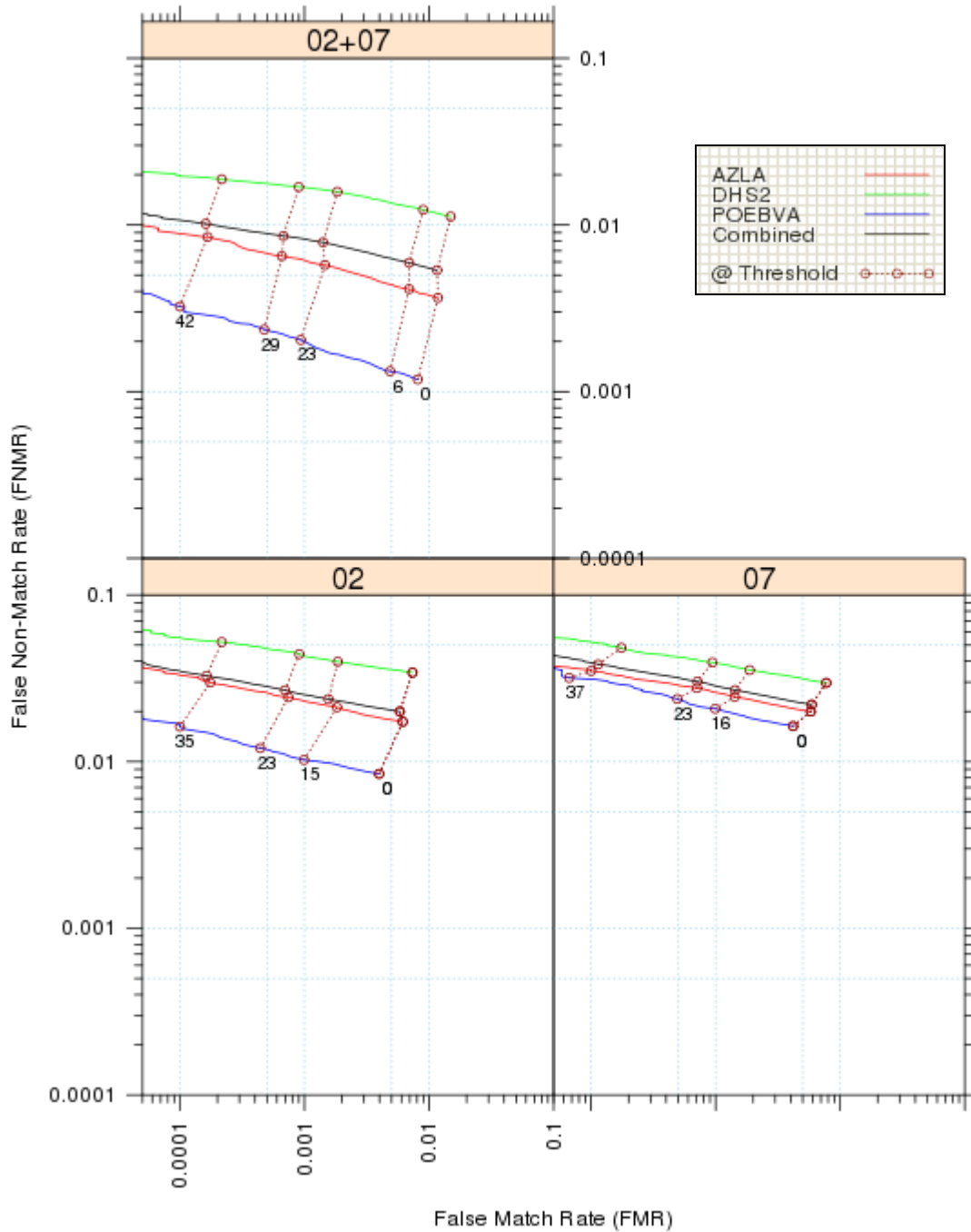
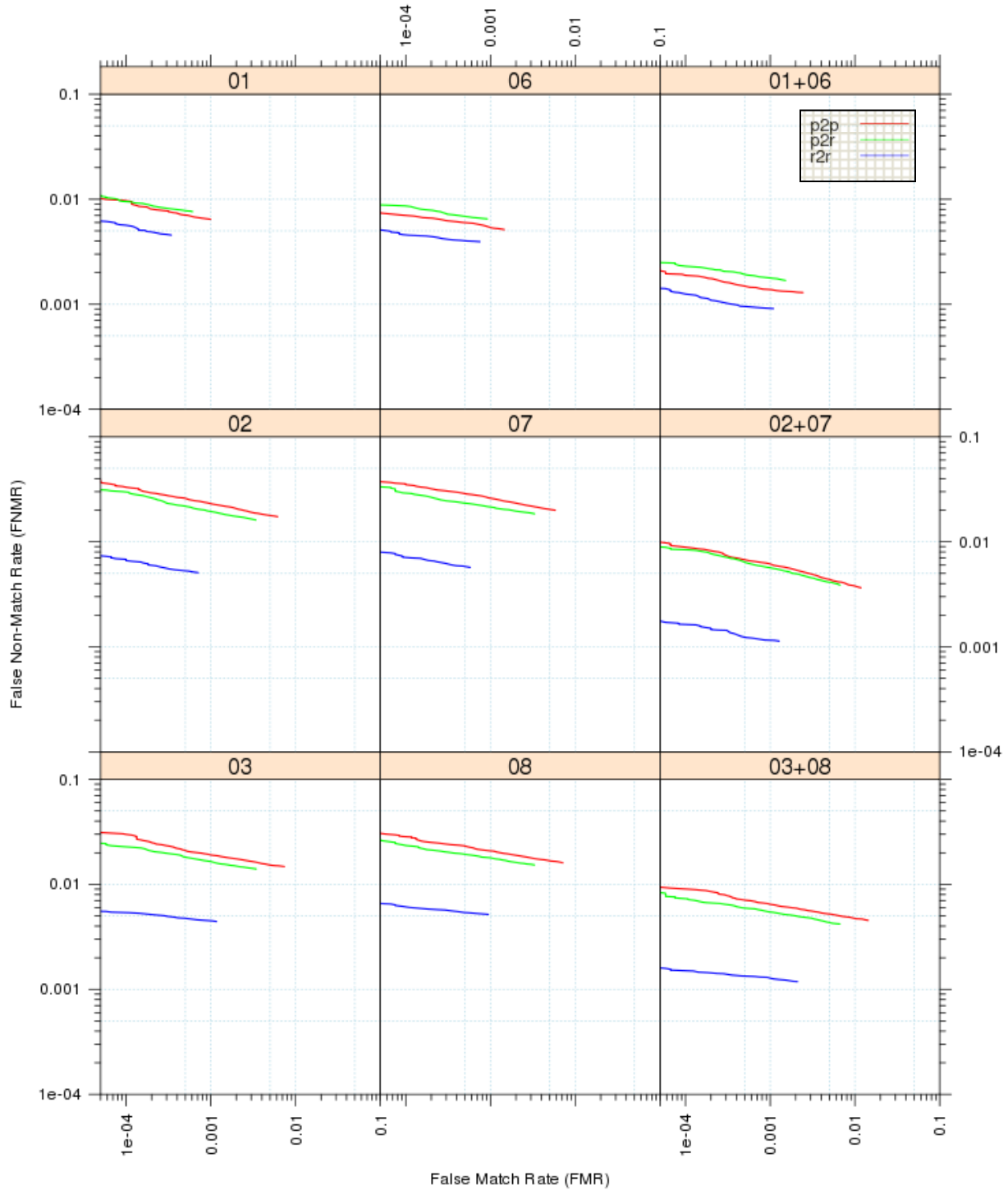


Figure 3B-3

### 3B- DET for dataset AZLA



**Figure 3B-4**

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

### 3B EER and FTE

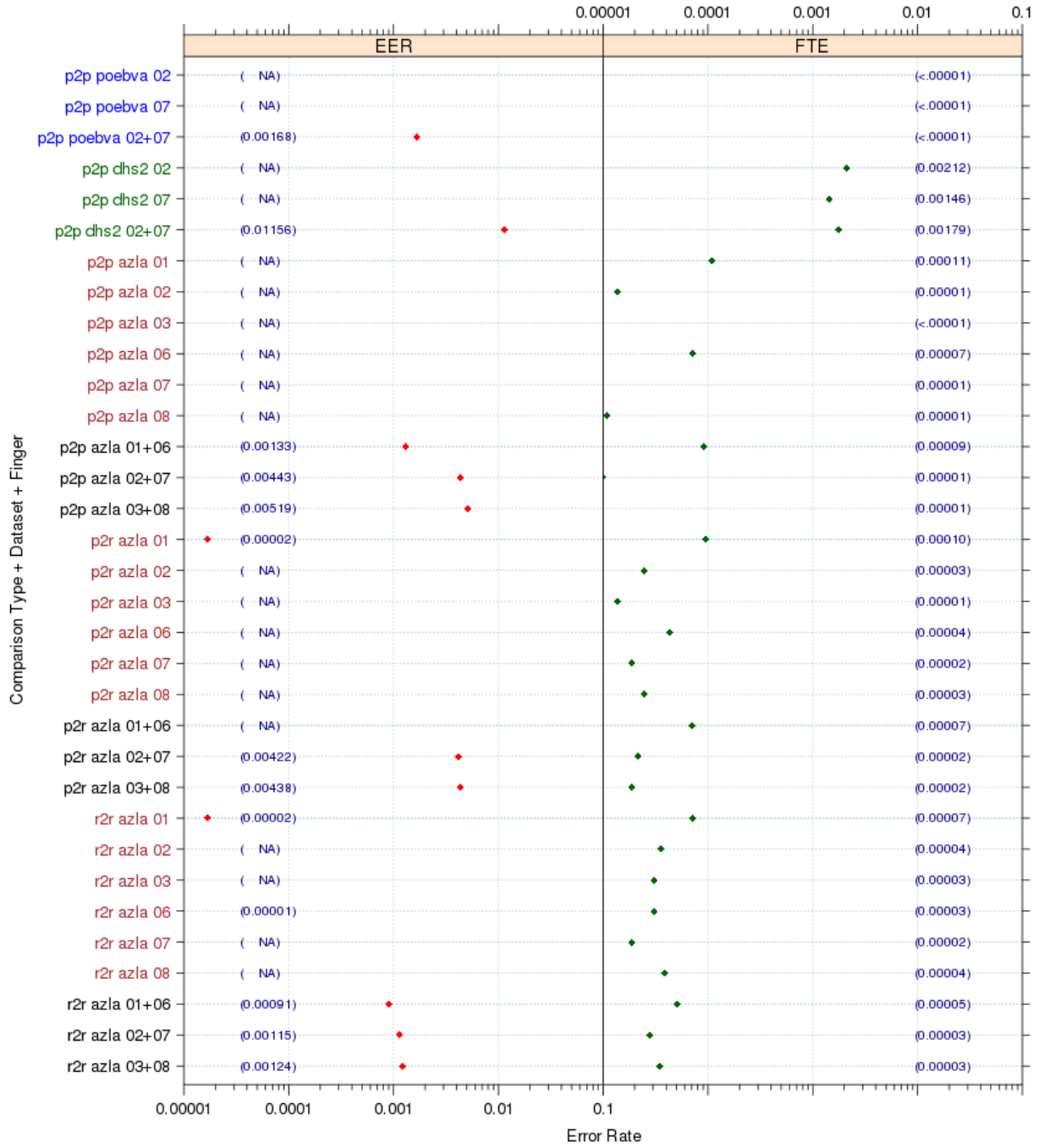


Figure 5

Note: NA - Could not obtain EER due to the minimum of FNMR is greater than the maximum of FMR (Fig 4).

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

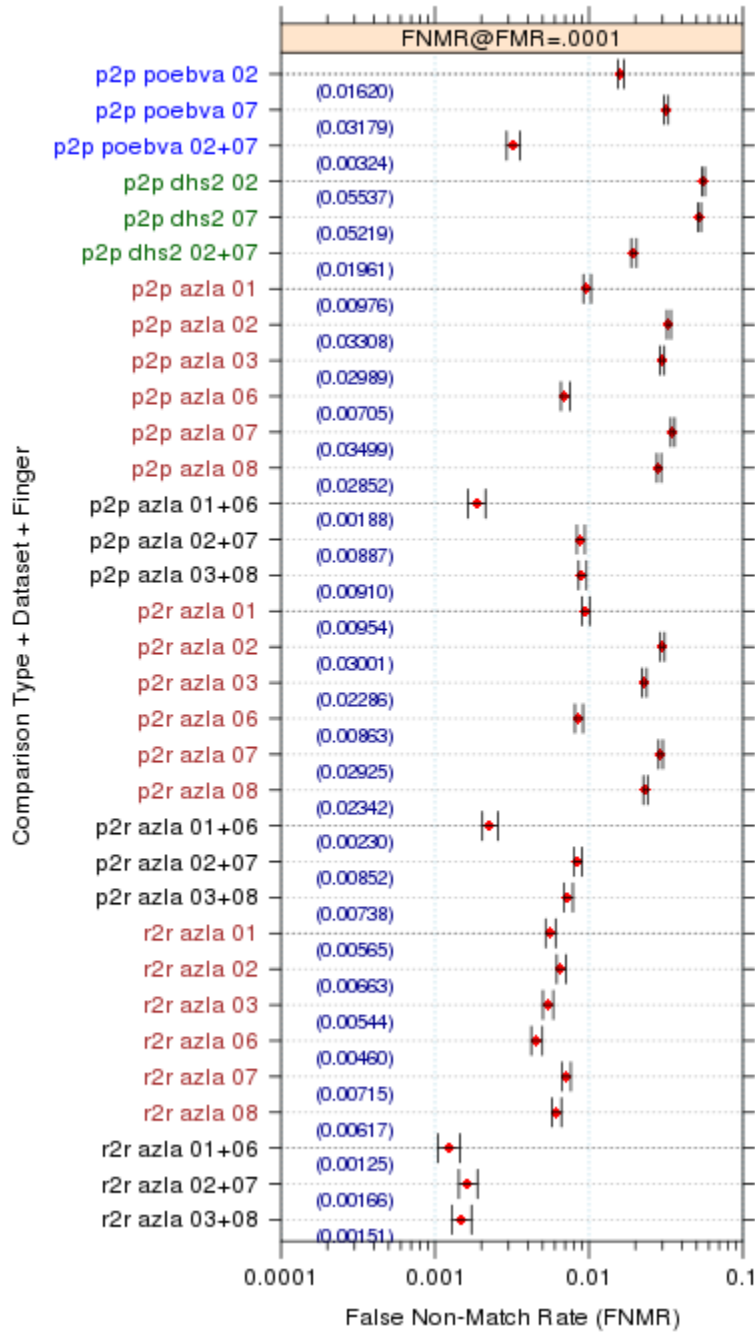


Figure 3B-6

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

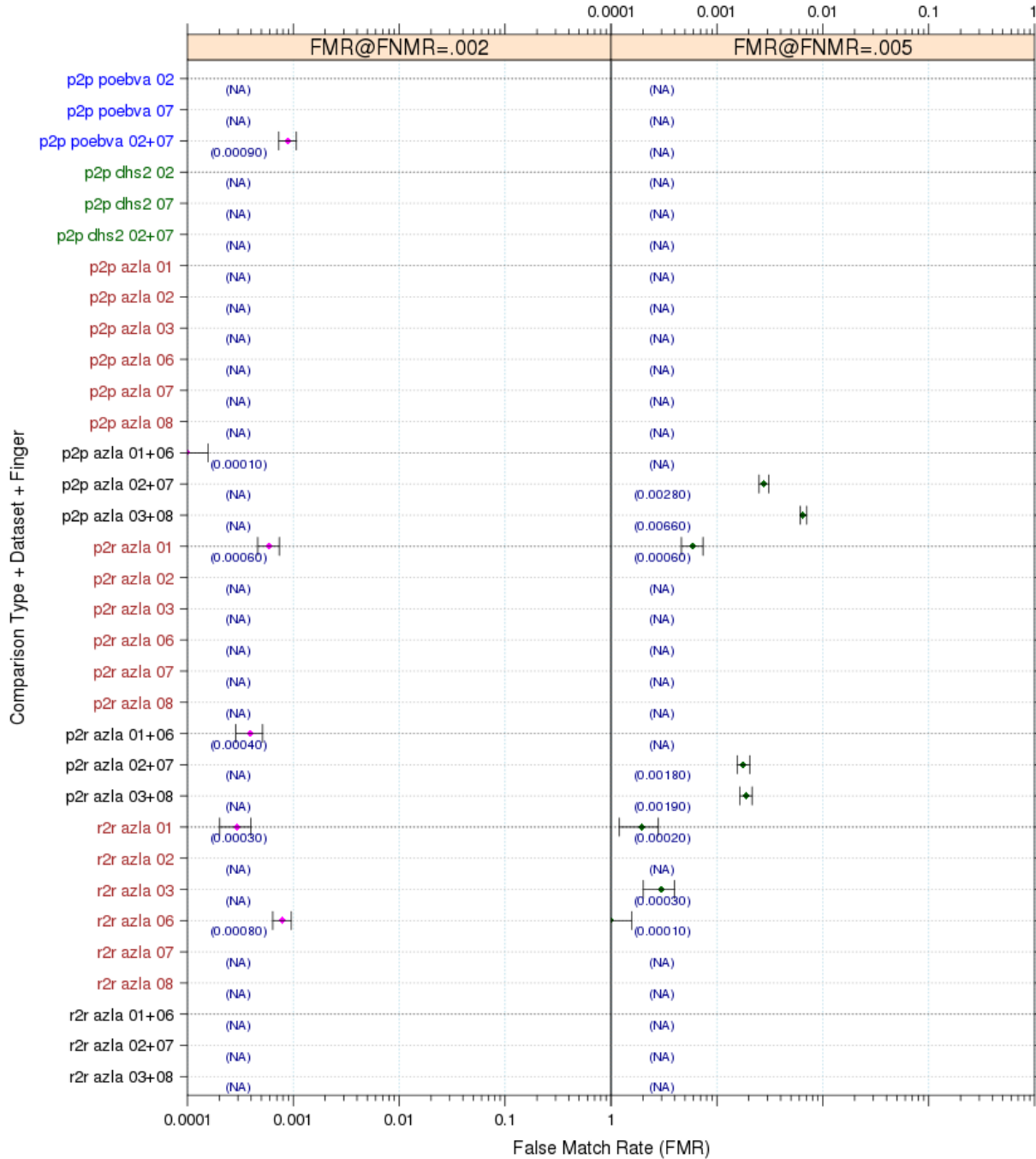


Figure 3B-7

Note: NA – The number couldn't be reliably measured due to the DET curves in Fig 3B-3, and 3B-4.



**3B - 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	NA	0.00212	762**
p2p	dhs2	07	NA	0.00146	524**
p2p	dhs2	02+07	0.0116	0.00179	1286**
p2p	azla	01	NA*	0.00011	40
p2p	azla	02	NA	0.00001	5
p2p	azla	03	NA	0.00000	0
p2p	azla	06	NA	0.00007	26
p2p	azla	07	NA	0.00001	2
p2p	azla	08	NA	0.00001	4
p2p	azla	01+06	0.0013	0.00009	66
p2p	azla	02+07	0.0044	0.00001	7
p2p	azla	03+08	0.0052	0.00001	4
p2r	azla	01	NA	0.00010	35
p2r	azla	02	NA	0.00003	9
p2r	azla	03	NA	0.00001	5
p2r	azla	06	NA	0.00004	16
p2r	azla	07	NA	0.00002	7
p2r	azla	08	NA	0.00003	9
p2r	azla	01+06	NA	0.00007	51
p2r	azla	02+07	0.0042	0.00002	16
p2r	azla	03+08	0.0044	0.00002	14
r2r	azla	01	NA	0.00007	26
r2r	azla	02	NA	0.00004	13
r2r	azla	03	NA	0.00003	11
r2r	azla	06	NA	0.00003	11
r2r	azla	07	NA	0.00002	7
r2r	azla	08	NA	0.00004	14
r2r	azla	01+06	0.0009	0.00005	37
r2r	azla	02+07	0.0012	0.00003	20
r2r	azla	03+08	0.0012	0.00004	25

**Table 3B-3**

Note: \* NA - Could not obtain EER due to the minimal FNMR is greater than the maximal of FMR (Fig 4).

\*\* Could not enroll when the images were very low contrast.

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

Matching Type	Dataset	Finger position	FNMR@ 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	0.016200	±0.00071	NA	NA	NA	NA
p2p	poebva	07	0.031792	±0.00099	NA	NA	NA	NA
p2p	poebva	02+07	0.003242	±0.00032	0.0009	0.00017	NA	NA
p2p	dhs2	02	0.055367	±0.00129	NA	NA	NA	NA
p2p	dhs2	07	0.052192	±0.00126	NA	NA	NA	NA
p2p	dhs2	02+07	0.019608	±0.00078	NA	NA	NA	NA
p2p	azla	01	0.009758	±0.00056	NA	NA	NA	NA
p2p	azla	02	0.033075	±0.00101	NA	NA	NA	NA
p2p	azla	03	0.029892	±0.00096	NA	NA	NA	NA
p2p	azla	06	0.007050	±0.00047	NA	NA	NA	NA
p2p	azla	07	0.034992	±0.00104	NA	NA	NA	NA
p2p	azla	08	0.028517	±0.00094	NA	NA	NA	NA
p2p	azla	01+06	0.001883	±0.00025	0.0001	0.00004	NA	NA
p2p	azla	02+07	0.008875	±0.00053	NA	NA	0.0028	0.00030
p2p	azla	03+08	0.009100	±0.00054	NA	NA	0.0066	0.00046
p2r	azla	01	0.009542	±0.00055	0.0006	0.00014	0.0006	0.00014
p2r	azla	02	0.030008	±0.00097	NA	NA	NA	NA
p2r	azla	03	0.022858	±0.00085	NA	NA	NA	NA
p2r	azla	06	0.008625	±0.00052	NA	NA	NA	NA
p2r	azla	07	0.029250	±0.00095	NA	NA	NA	NA
p2r	azla	08	0.023417	±0.00086	NA	NA	NA	NA
p2r	azla	01+06	0.002300	±0.00027	0.0004	0.00011	NA	NA
p2r	azla	02+07	0.008517	±0.00052	NA	NA	0.0018	0.00024
p2r	azla	03+08	0.007383	±0.00048	NA	NA	0.0020	0.00026
r2r	azla	01	0.005650	±0.00042	0.0003	0.00011	0.0002	0.00007
r2r	azla	02	0.006633	±0.00046	NA	NA	NA	NA
r2r	azla	03	0.005442	±0.00042	NA	NA	0.0003	0.00010
r2r	azla	06	0.0046	±0.00038	0.0008	0.00016	0.0001	0.00004
r2r	azla	07	0.007150	±0.00048	NA	NA	NA	NA
r2r	azla	08	0.006175	±0.00044	NA	NA	NA	NA
r2r	azla	01+06	0.001250	±0.00020	NA	NA	NA	NA
r2r	azla	02+07	0.001658	±0.00023	NA	NA	NA	NA
r2r	azla	03+08	0.001508	±0.00022	NA	NA	NA	NA

**Table 3B-4**

Note: NA – The number couldn't be reliably measured due to the DET curves in Fig 3B-3, and 3B-4.