

## 3G Results

6/28/2012

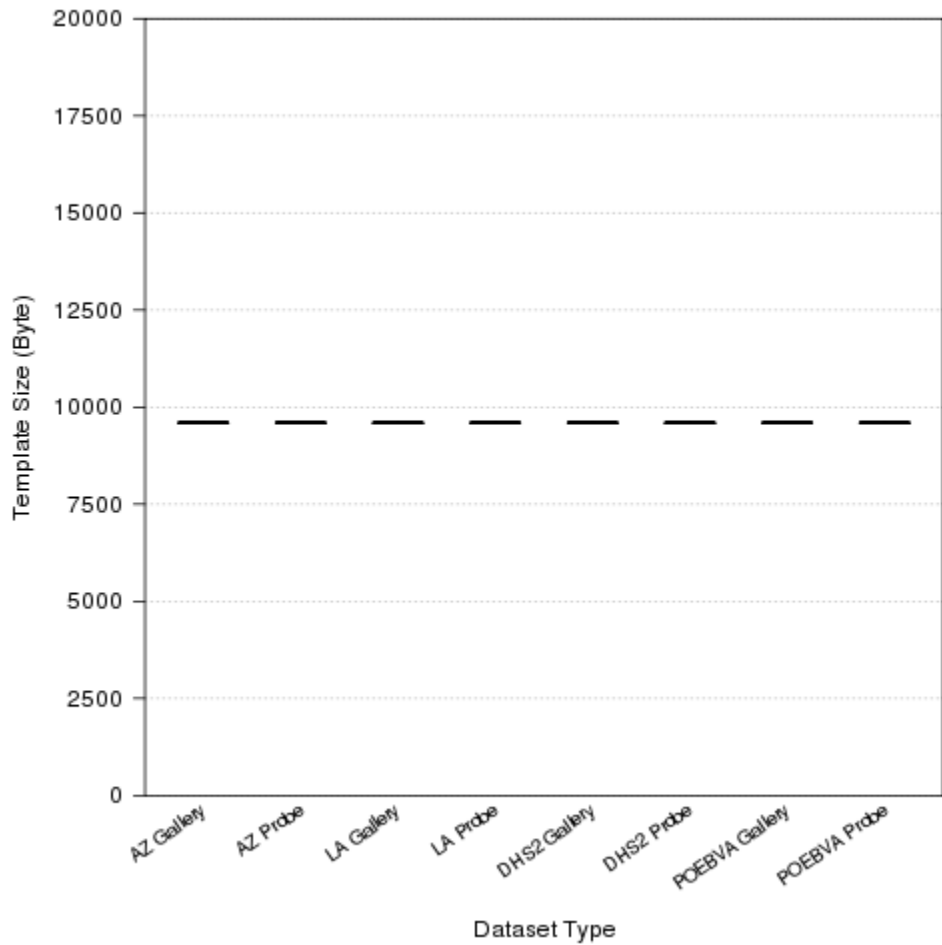
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\* Note:

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

### 3G 1K Sample Template Size Distribution



**Figure 3G-1**

Dataset	AZ	AZ	LA	LA	DHS2	DHS2	POEBVA	POEBVA
Type	Gallery	Probe	Gallery	Probe	Gallery	Probe	Gallery	Probe
Width x Height (pixels)	800x800	800x800	412x1000	400x776	368x368	368x368	500x500	368x368
Maximum	9592	9592	9592	9592	9592	9592	9592	9592
75%	9592	9592	9592	9592	9592	9592	9592	9592
Median	9592	9592	9592	9592	9592	9592	9592	9592
25%	9592	9592	9592	9592	9592	9592	9592	9592
Minimum	9592	9592	9592	9592	9592	9592	9592	9592

**Table 3G-1**

Note: All the template sizes are the same with 9592 byte.

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

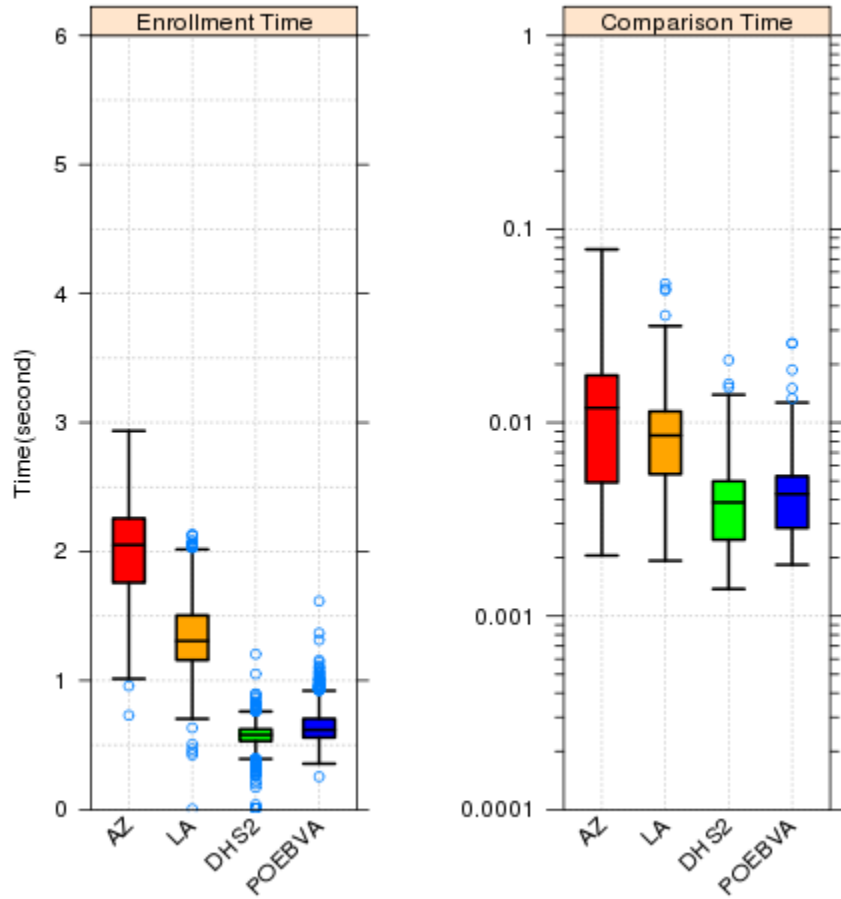


Figure 3G-2

**Enrollment Time (second)**

Dataset	AZ	LA	DHS2	POEBVA
Maximum	2.9357	2.1324	1.2048	1.6162
75%	2.2571	1.5051	0.6230	0.7043
Median	2.0512	1.3070	0.5790	0.6173
25%	1.7585	1.1588	0.5308	0.5581
Minimum	0.7307	0.0030	0.0095	0.2547

**Comparison Time (second)**

Dataset	AZ	LA	DHS2	POEBVA
Maximum	0.0785	0.0522	0.0210	0.0257
75%	0.0175	0.0114	0.0050	0.0053
Median	0.0119	0.0086	0.0039	0.0043
25%	0.0049	0.0054	0.0025	0.0029
Minimum	0.0010	0.0002	0.0000	0.0003

**Table 3G-2 1K Sample Enrollment and Comparison Time**

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

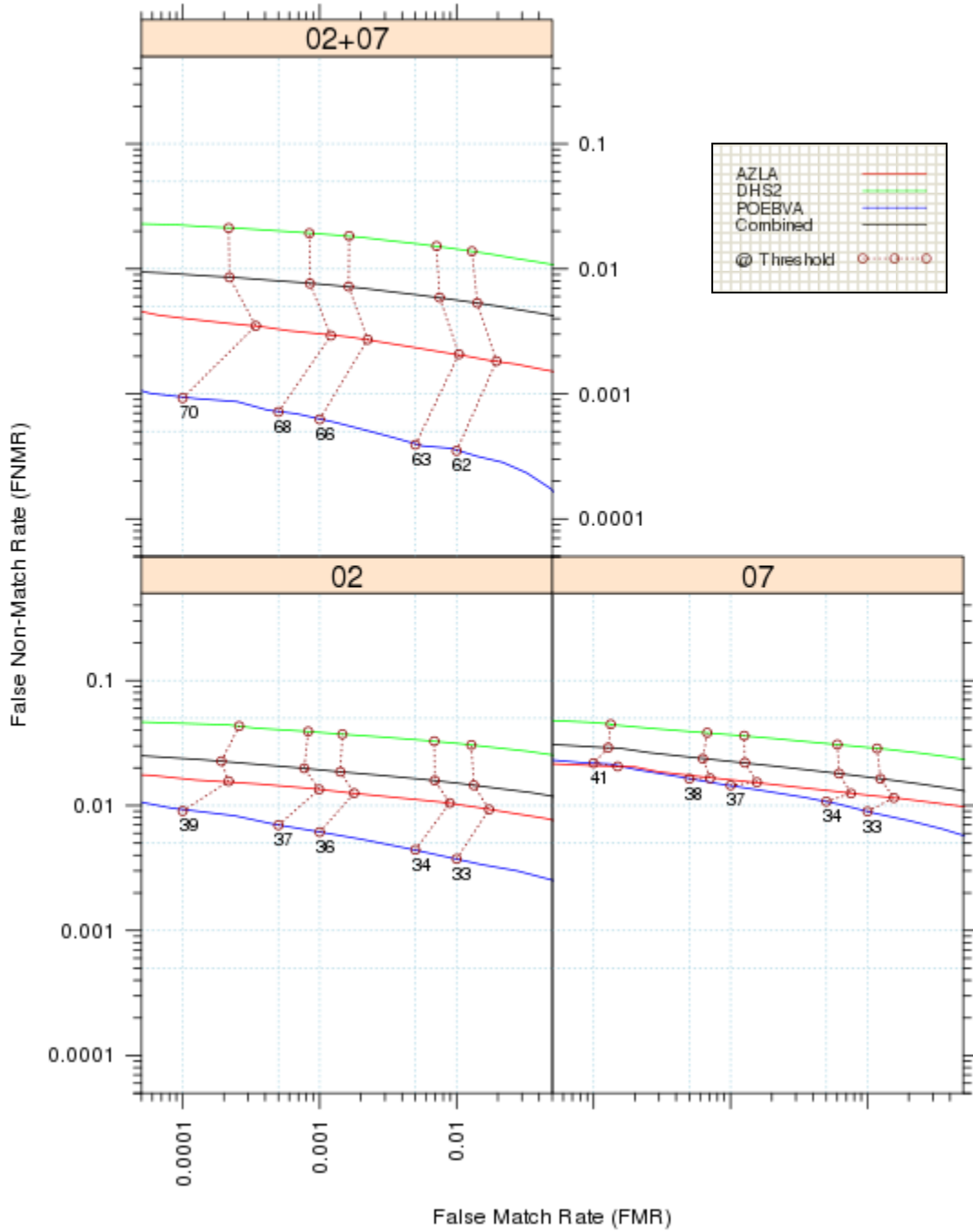
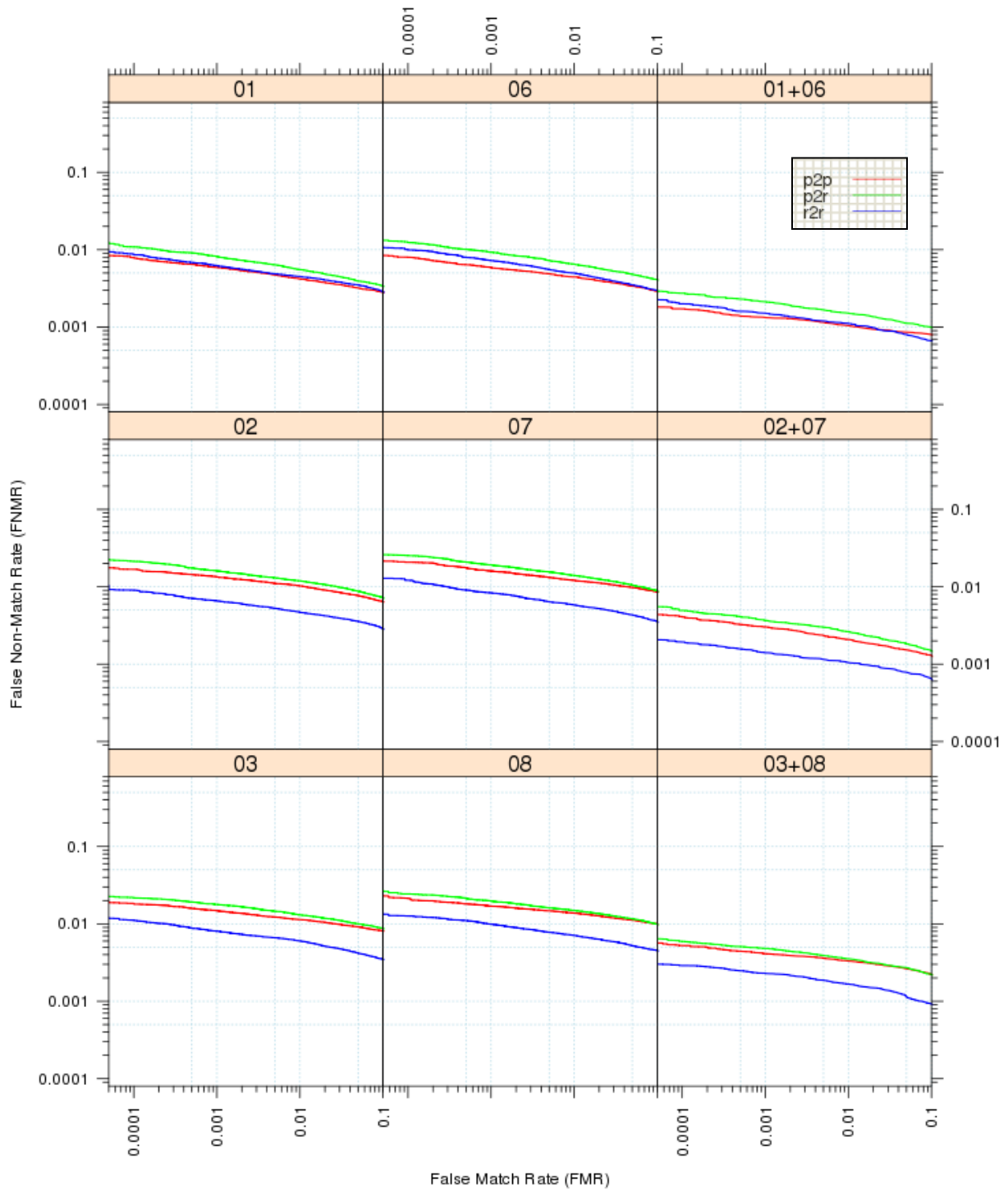


Figure 3G-3

### 3G- DET for dataset AZLA



**Figure 3G-4**

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

### 3G EER and FTE

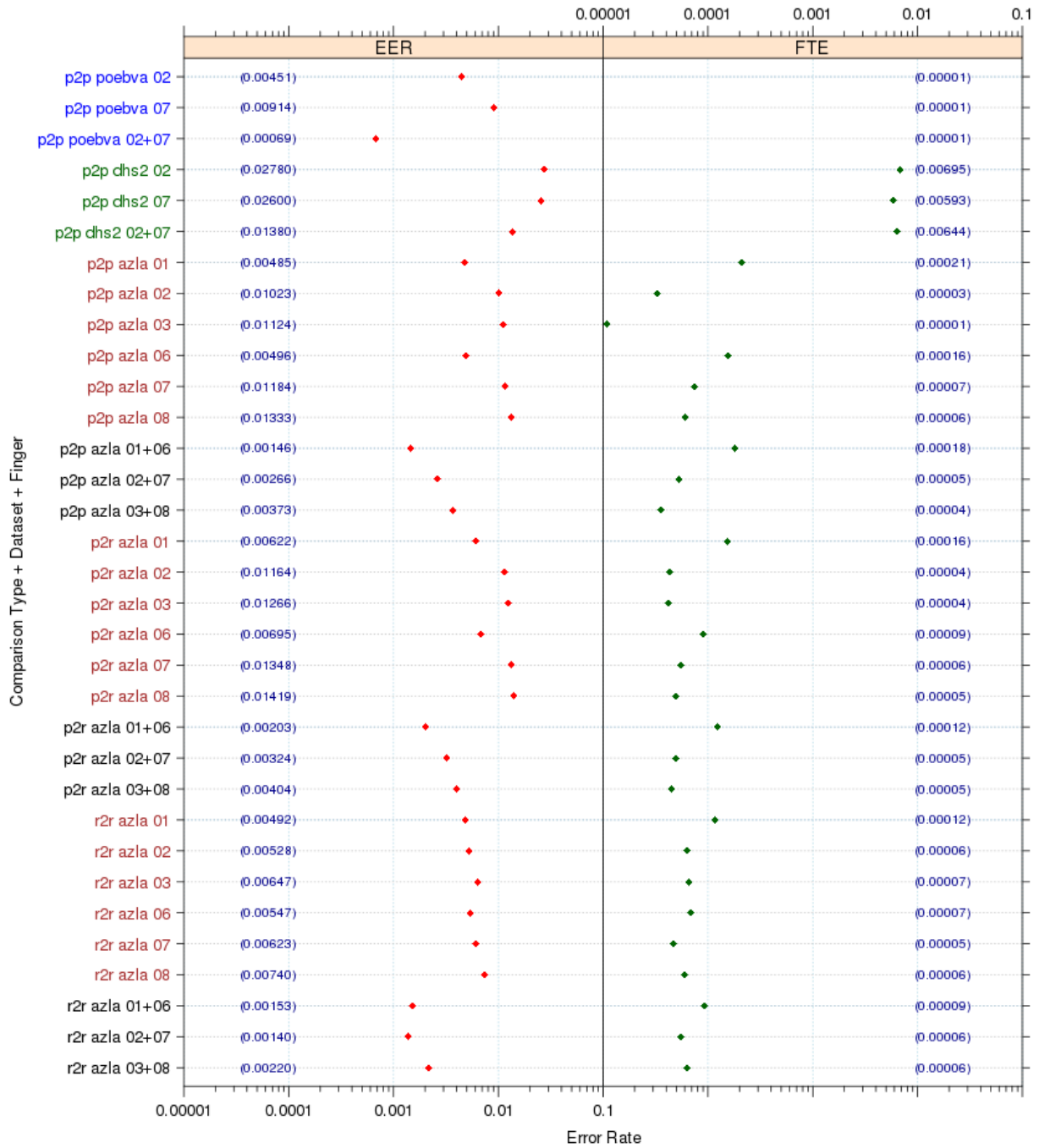


Figure 3G-5

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

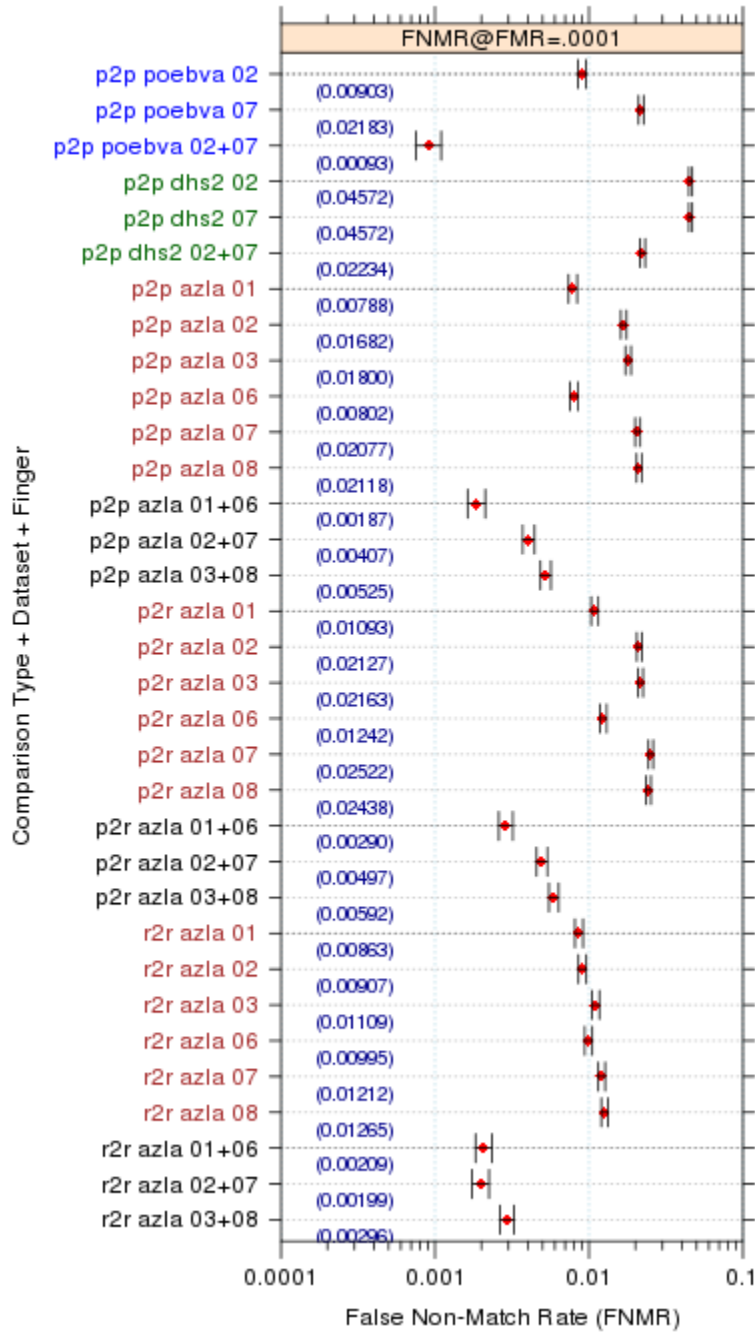


Figure 3G-5

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

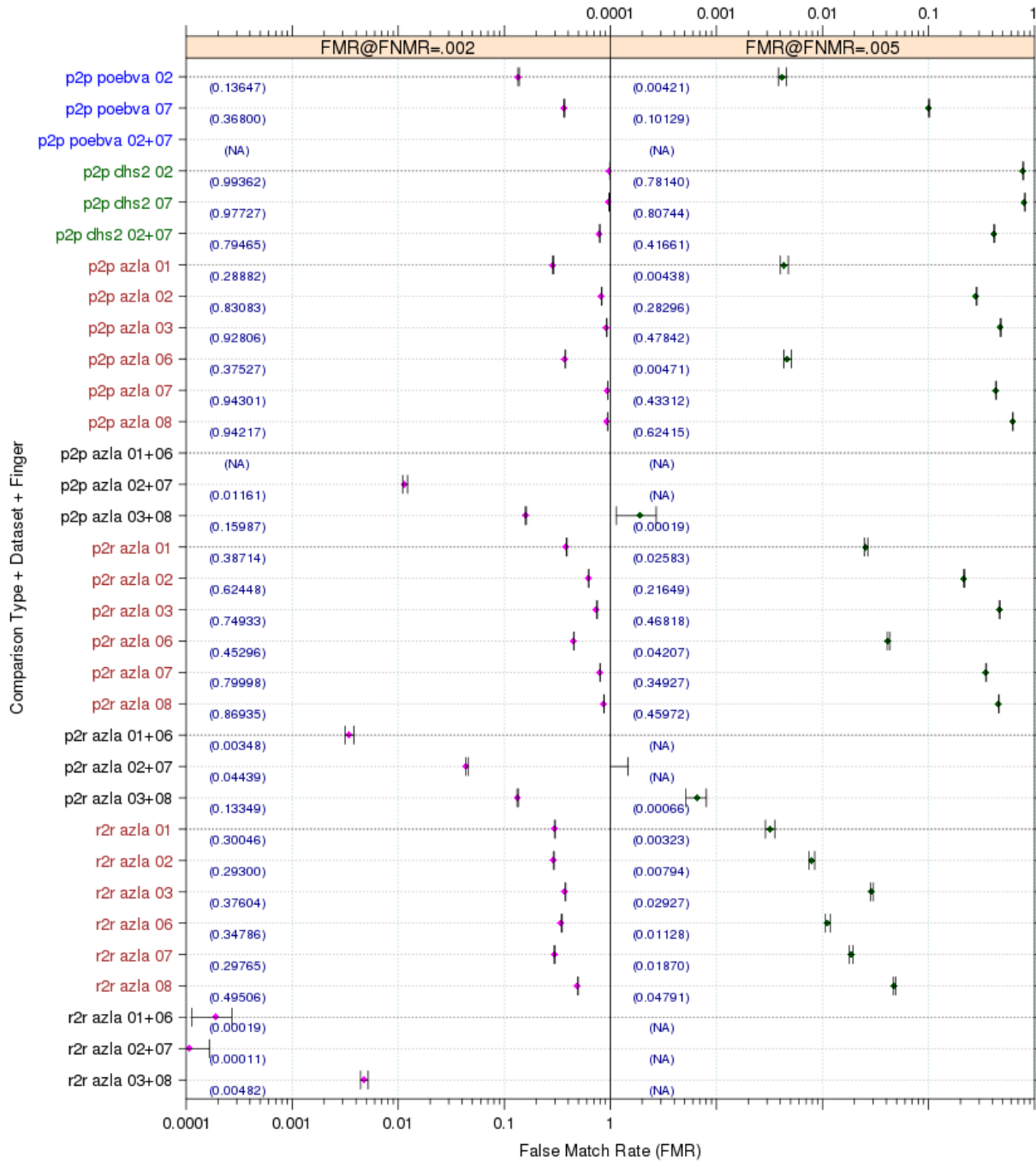


Figure 3G-6

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



**3G - EER and FTE table**

Comparison Type	Dataset	Finger Position	EER	FTE Rate	FTE count
p2p	poebva	02	0.0045	0.00001	2
p2p	poebva	07	0.0091	0.00001	2
p2p	poebva	02+07	0.0007	0.00001	4
p2p	dhs2	02	0.0278	0.00695	2501*
p2p	dhs2	07	0.0260	0.00593	2136*
p2p	dhs2	02+07	0.0138	0.00644	4637*
p2p	azla	01	0.0049	0.00021	76
p2p	azla	02	0.0102	0.00003	12
p2p	azla	03	0.0112	0.00001	4
p2p	azla	06	0.0050	0.00016	57
p2p	azla	07	0.0118	0.00008	27
p2p	azla	08	0.0133	0.00006	22
p2p	azla	01+06	0.0015	0.00019	133
p2p	azla	02+07	0.0027	0.00005	39
p2p	azla	03+08	0.0037	0.00004	26
p2r	azla	01	0.0062	0.00016	56
p2r	azla	02	0.0116	0.00004	16
p2r	azla	03	0.0127	0.00004	15
p2r	azla	06	0.0070	0.00009	33
p2r	azla	07	0.0135	0.00006	20
p2r	azla	08	0.0142	0.00005	18
p2r	azla	01+06	0.0020	0.00012	89
p2r	azla	02+07	0.0032	0.00005	36
p2r	azla	03+08	0.0040	0.00005	33
r2r	azla	01	0.0049	0.00012	42
r2r	azla	02	0.0053	0.00006	23
r2r	azla	03	0.0065	0.00007	24
r2r	azla	06	0.0055	0.00007	25
r2r	azla	07	0.0062	0.00005	17
r2r	azla	08	0.0074	0.00006	22
r2r	azla	01+06	0.0015	0.00009	67
r2r	azla	02+07	0.0014	0.00006	40
r2r	azla	03+08	0.0022	0.00006	46

**Table 3G-3**

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

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

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	0.0090	±0.00053	0.1365	±0.00194	0.0042	±0.00037
p2p	poebva	07	0.0218	±0.00083	0.3680	±0.00273	0.1013	±0.00171
p2p	poebva	02+07	0.0009	±0.00017	NA	NA	NA	NA
p2p	dhs2	02	0.0457	±0.00118	0.9936	±0.00045	0.7814	±0.00234
p2p	dhs2	07	0.0457	±0.00118	0.9773	±0.00084	0.8074	±0.00223
p2p	dhs2	02+07	0.0223	±0.00084	0.7947	±0.00229	0.4166	±0.00279
p2p	azla	01	0.0079	±0.00050	0.2888	±0.00256	0.0044	±0.00037
p2p	azla	02	0.0168	±0.00073	0.8308	±0.00212	0.283	±0.00255
p2p	azla	03	0.0180	±0.00075	0.9281	±0.00146	0.4784	±0.00283
p2p	azla	06	0.0080	±0.00051	0.3753	±0.00274	0.0047	±0.00039
p2p	azla	07	0.0208	±0.00081	0.9430	±0.00131	0.4331	±0.00280
p2p	azla	08	0.0212	±0.00081	0.9422	±0.00132	0.6241	±0.00274
p2p	azla	01+06	0.0019	±0.00024	0.0001	±0.00004	NA	NA
p2p	azla	02+07	0.0041	±0.00036	0.0116	±0.00061	NA	±0.00003
p2p	azla	03+08	0.0053	±0.00041	0.1599	±0.00207	0.0002	±0.00008
p2r	azla	01	0.0109	±0.00059	0.3871	±0.00276	0.0258	±0.00090
p2r	azla	02	0.0213	±0.00082	0.6245	±0.00274	0.2165	±0.00233
p2r	azla	03	0.0216	±0.00082	0.7493	±0.00245	0.4682	±0.00282
p2r	azla	06	0.0124	±0.00063	0.4530	±0.00282	0.0421	±0.00114
p2r	azla	07	0.0252	±0.00089	0.8000	±0.00226	0.3493	±0.00270
p2r	azla	08	0.0244	±0.00087	0.8694	±0.00191	0.4597	±0.00282
p2r	azla	01+06	0.0029	±0.00030	0.0035	±0.00033	NA	NA
p2r	azla	02+07	0.0050	±0.00040	0.0444	±0.00117	0.0001	±0.00005
p2r	azla	03+08	0.0059	±0.00043	0.1335	±0.00192	0.0007	±0.00015
r2r	azla	01	0.0086	±0.00052	0.3005	±0.00259	0.0032	±0.00032
r2r	azla	02	0.0091	±0.00054	0.2930	±0.00258	0.0079	±0.00050
r2r	azla	03	0.0111	±0.00059	0.3760	±0.00274	0.0293	±0.00095
r2r	azla	06	0.0100	±0.00056	0.3479	±0.00269	0.0113	±0.00060
r2r	azla	07	0.0121	±0.00062	0.2977	±0.00259	0.0187	±0.00077
r2r	azla	08	0.0126	±0.00063	0.4951	±0.00283	0.0479	±0.00121
r2r	azla	01+06	0.0021	±0.00026	0.0002	±0.00008	NA	NA
r2r	azla	02+07	0.0020	±0.00025	0.0001	±0.00006	NA	NA
r2r	azla	03+08	0.0030	±0.00031	0.0048	±0.00039	NA	NA

**Table 3G-4**

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