



Federal Bureau of Investigation
Criminal Justice Information Services Division

Recommendations for ANSI NIST Revisions
As Applied to Next Generation IAFIS Palm Initiative

April 2005



Introduction

- FBI Palm Service will serve as the National Palm Repository
- Fully Integrated within IAFIS
- Primary customers include FBI Laboratory Division and other federal, state and local law enforcement agencies
- Recommendations for Updating Standards to assist in achieving these goals



National Palm Print System

■ Functionality

- Receive, Store, & Search Palm Prints
 - Including Major Case Prints
- Allow Bulk Submissions
- Search Unsolved Latent File
- Multi-modal

■ Benefits

- Additional Biometric
- Solve More Crimes



Major Case Prints

- Major Case Prints impressions are generally referred to as palm prints, but can be comprised of a variety of impression types including the rolled edge of the hypothenar (“writer’s palm”), the rolled edge of the thenar (thenar roll), the area of skin between the thumb and index finger (“grip print”), the area below the carpal delta (“wrist bracelet”), joint fingerprints and tip fingerprints
- 92 additional codes identified



Benefit of Additional Codes

- AFIS Enrollment
- Standardize Major Case Card
- Search Partitioning
- Performance/Accuracy
- Importance for latent examiners to reproduce (print)
- Vetted recommendations via IAI AFIS Committee and FBI Laboratory



Current Finger Positions

Table 6 – Finger position code & maximum size

Finger position	Finger code	Max image area (mm ²)	Width		Length	
			(mm)	(in)	(mm)	(in)
Unknown	0	1745	40.6	1.6	38.1	1.5
Right thumb	1	1745	40.6	1.6	38.1	1.5
Right index finger	2	1640	40.6	1.6	38.1	1.5
Right middle finger	3	1640	40.6	1.6	38.1	1.5
Right ring finger	4	1640	40.6	1.6	38.1	1.5
Right little finger	5	1640	40.6	1.6	38.1	1.5
Left thumb	6	1745	40.6	1.6	38.1	1.5
Left index finger	7	1640	40.6	1.6	38.1	1.5
Left middle finger	8	1640	40.6	1.6	38.1	1.5
Left ring finger	9	1640	40.6	1.6	38.1	1.5
Left little finger	10	1640	40.6	1.6	38.1	1.5
Plain right thumb	11	2400	25.4	1.0	50.8	2.0
Plain left thumb	12	2400	25.4	1.0	50.8	2.0
Plain right four fingers	13	6800	81.3	3.2	50.8	2.0
Plain left four fingers	14	6800	81.3	3.2	50.8	2.0



Current Palm Positions

Table 19 – Palm codes, areas, & sizes

Palm Position	Palm code	Image area (mm ²)	Width		Height	
			(mm)	(in)	(mm)	(in)
Unknown Palm	20	28387	139.7	5.5	203.2	8.0
Right Full Palm	21	28387	139.7	5.5	203.2	8.0
Right Writer's Palm	22	5645	44.5	1.8	127.0	5.0
Left Full Palm	23	28387	139.7	5.5	203.2	8.0
Left Writer's Palm	24	5645	44.5	1.8	127.0	5.0
Right Lower Palm	25	19516	139.7	5.5	139.7	5.5
Right Upper Palm	26	19516	139.7	5.5	139.7	5.5
Left Lower Palm	27	19516	139.7	5.5	139.7	5.5
Left Upper Palm	28	19516	139.7	5.5	139.7	5.5
Right Other	29	28387	139.7	5.5	203.2	8.0
Left Other	30	28387	139.7	5.5	203.2	8.0



New INCITS Palm Codes

Palm Position	Palm Code
Right Interdigital	31
Right Thenar	32
Right Hypothenar	33
Left Interdigital	34
Left Thenar	35
Left Hypothenar	36



FBI Proposed Palm Codes

Palm Position	Palm Code
Right Full Hand	37
Left Full Hand	38
Right Rolled Full Palm	39
Left Rolled Full Palm	40
Right Rolled Lower Palm	41
Left Rolled Lower Palm	42
Right Thenar Roll	43
Left Thenar Roll	44
Right Carpal Roll	45
Left Carpal Roll	46
Right Interdigital Roll	47
Left Interdigital Roll	48
Right Grip Print	49
Left Grip Print	50
Right Hypothenar Roll	51
Left Hypothenar Roll	52



FBI Proposed Palm Codes

(Continued)

Palm Position	Palm Code
#1 Rolled Joint Print	60
#2 Rolled Joint Print	61
#3 Rolled Joint Print	62
#4 Rolled Joint Print	63
#5 Rolled Joint Print	64
#6 Rolled Joint Print	65
#7 Rolled Joint Print	66
#8 Rolled Joint Print	67
#9 Rolled Joint Print	68
#10 Rolled Joint Print	69



FBI Proposed Palm Codes

(Continued)

Palm Position	Palm Code
#1 Left Side Joint Print	70
#2 Left Side Joint Print	71
#3 Left Side Joint Print	72
#4 Left Side Joint Print	73
#5 Left Side Joint Print	74
#6 Left Side Joint Print	75
#7 Left Side Joint Print	76
#8 Left Side Joint Print	77
#9 Left Side Joint Print	78
#10 Left Side Joint Print	79



FBI Proposed Palm Codes

(Continued)

Palm Position	Palm Code
#1 Middle Joint Print	80
#2 Middle Joint Print	81
#3 Middle Joint Print	82
#4 Middle Joint Print	83
#5 Middle Joint Print	84
#6 Middle Joint Print	85
#7 Middle Joint Print	86
#8 Middle Joint Print	87
#9 Middle Joint Print	88
#10 Middle Joint Print	89



FBI Proposed Palm Codes

(Continued)

Palm Position	Palm Code
#1 Right Side Joint Print	90
#2 Right Side Joint Print	91
#3 Right Side Joint Print	92
#4 Right Side Joint Print	93
#5 Right Side Joint Print	94
#6 Right Side Joint Print	95
#7 Right Side Joint Print	96
#8 Right Side Joint Print	97
#9 Right Side Joint Print	98
#10 Right Side Joint Print	99



FBI Proposed Palm Codes

(Continued)

Palm Position	Palm Code
#1 Rolled Tip Fingerprint	100
#2 Rolled Tip Fingerprint	101
#3 Rolled Tip Fingerprint	102
#4 Rolled Tip Fingerprint	103
#5 Rolled Tip Fingerprint	104
#6 Rolled Tip Fingerprint	105
#7 Rolled Tip Fingerprint	106
#8 Rolled Tip Fingerprint	107
#9 Rolled Tip Fingerprint	108
#10 Rolled Tip Fingerprint	109



FBI Proposed Palm Codes

(Continued)

Palm Position	Palm Code
#1 Straight Up Tip Fingerprint	110
#2 Straight Up Tip Fingerprint	111
#3 Straight Up Tip Fingerprint	112
#4 Straight Up Tip Fingerprint	113
#5 Straight Up Tip Fingerprint	114
#6 Straight Up Tip Fingerprint	115
#7 Straight Up Tip Fingerprint	116
#8 Straight Up Tip Fingerprint	117
#9 Straight Up Tip Fingerprint	118
#10 Straight Up Tip Fingerprint	119



FBI Proposed Palm Codes

(Continued)

Palm Position	Palm Code
#1 Tip Fingerprint (90 degree)	120
#2 Tip Fingerprint (90 degree)	121
#3 Tip Fingerprint (90 degree)	122
#4 Tip Fingerprint (90 degree)	123
#5 Tip Fingerprint (90 degree)	124
#6 Tip Fingerprint (90 degree)	125
#7 Tip Fingerprint (90 degree)	126
#8 Tip Fingerprint (90 degree)	127
#9 Tip Fingerprint (90 degree)	128
#10 Tip Fingerprint (90 degree)	129



Further Recommendations

With the additions of the aforementioned codes, it is recommended that the existing PLP codes in Table 19 be further defined as below:

- #21, Right Full Palm, further defined as “Flat”. (as opposed to right full palm “rolled” in proposed field 39)
- #23, Left Full Palm, further defined as “Flat”. (as opposed to left full palm “rolled” in proposed field 40)
- #25, Right Lower Palm, further defined as “Flat”. (as opposed to right lower palm “rolled” in proposed field 41)
- #27, Left Lower Palm, further defined as “Flat”. (as opposed to left lower palm “rolled” in proposed field 42)



Summary

- Integrate new codes within ANSI NIST to better support Major Case prints and Next Generation IAFIS
- Image area (width and height) TBD
- Need exists to standardize a Major Case Print Card(s) which maps to ANSI NIST fields

Questions?

