

## **Appendix A: Datasets ranked by TAR @ FAR 0.01% for each SDK.**

The rankings are in three groups. The first group is for datasets DOS-C, DHS2-C, VISIT\_POE, VISIT\_POE\_BVA, BEN, DHS10, and TXDPS. Second is OHIO data which is split into plain to plain (p2p) and plain to rolled (p2r). Last is SD29 data split into p2p, p2r, and rolled to rolled (r2r).

<b>VTB</b>	
ben_rt	96.20
ben_lt	94.67
txdps_rt	89.96
txdps_lt	88.59
ben_ri	88.54
txdps_ri	86.01
txdps_li	84.64
dhs10_lt	83.99
dhs10_rt	83.98
po_e_ri	83.66
ben_li	83.21
dos-c_ri	83.20
bva_ri	82.95
po_e_li	81.18
dhs2-c_ri	79.45
bva_li	78.10
dhs2-c_li	77.63
dos-c_li	75.68
dhs10_ri	73.70
dhs10_li	73.51
AVG	83.44

<b>A</b>	
ben_rt	96.08
ben_lt	92.04
ben_ri	90.86
bva_ri	89.44
po_e_ri	87.80
dos-c_ri	87.63
txdps_ri	87.48
ben_li	84.76
bva_li	82.28
po_e_li	82.18
txdps_rt	81.64
txdps_li	81.16
dos-c_li	78.09
txdps_lt	77.88
dhs10_ri	77.49
dhs10_rt	77.19
dhs10_lt	74.80
dhs10_li	74.07
dhs2-c_ri	52.39
dhs2-c_li	50.05
AVG	80.27

<b>B</b>	
ben_rt	93.30
dos-c_ri	91.03
ben_lt	90.00
bva_ri	88.17
ben_ri	86.20
po_e_li	84.61
dos-c_li	84.27
bva_li	83.02
txdps_ri	81.65
ben_li	79.85
txdps_li	76.36
dhs2-c_ri	74.99
dhs2-c_li	74.07
dhs10_ri	72.04
dhs10_li	68.57
dhs10_rt	66.31
dhs10_lt	62.97
txdps_lt	62.72
txdps_rt	61.57
po_e_ri	NA
AVG	77.98

<b>C</b>	
ben_rt	98.81
ben_lt	97.79
bva_ri	97.63
po_e_ri	97.39
dos-c_ri	96.39
ben_ri	96.36
po_e_li	96.16
bva_li	95.87
txdps_ri	95.10
txdps_li	93.89
ben_li	93.31
dos-c_li	93.13
dhs10_rt	92.44
dhs2-c_li	91.03
dhs2-c_ri	90.86
dhs10_lt	90.05
dhs10_ri	87.91
dhs10_li	86.34
txdps_lt	83.84
txdps_rt	83.00
AVG	92.86

<b>D</b>	
ben_rt	98.75
bva_ri	97.99
ben_lt	97.98
po_e_ri	97.46
ben_ri	96.45
bva_li	96.25
po_e_li	96.12
dos-c_ri	96.01
txdps_rt	95.89
dhs2-c_li	95.72
dhs2-c_ri	95.30
dhs10_rt	95.27
txdps_ri	95.11
dhs10_lt	94.55
ben_li	94.24
txdps_lt	93.85
txdps_li	93.75
dos-c_li	93.53
dhs10_ri	89.65
dhs10_li	88.90
AVG	95.14

<b>E</b>	
ben_rt	91.48
ben_lt	87.63
txdps_rt	83.60
txdps_lt	79.62
dos-c_ri	79.18
dhs10_rt	78.89
bva_ri	76.56
txdps_ri	76.32
dhs10_lt	75.33
po_e_ri	73.75
ben_ri	72.72
txdps_li	71.32
po_e_li	70.57
bva_li	69.56
dos-c_li	67.81
ben_li	63.36
dhs10_ri	59.33
dhs10_li	57.15
dhs2-c_li	41.04
dhs2-c_ri	40.33
AVG	70.78

<b>F</b>	
ben_rt	99.23
ben_lt	98.90
bva_ri	98.89
poe_ri	98.30
ben_ri	97.93
bva_li	97.66
dos-c_ri	97.62
poe_li	97.53
dhs2-c_li	97.45
txdps_rt	97.07
dhs2-c_ri	97.06
dhs10_rt	96.44
txdps_ri	96.43
dhs10_lt	96.20
ben_li	96.07
txdps_lt	95.53
dos-c_li	95.32
txdps_li	95.07
dhs10_ri	92.30
dhs10_li	90.86
AVG	96.59

<b>G</b>	
ben_rt	98.93
ben_lt	98.86
bva_ri	98.18
txdps_rt	98.11
ben_ri	97.36
txdps_lt	97.28
poe_ri	96.91
dos-c_ri	96.91
txdps_ri	96.70
dhs2-c_ri	96.56
bva_li	96.31
poe_li	96.27
dhs2-c_li	96.16
dhs10_rt	96.09
txdps_li	95.85
dhs10_lt	95.55
ben_li	95.28
dos-c_li	93.91
dhs10_ri	90.67
dhs10_li	89.91
AVG	96.09

<b>H</b>	
ben_rt	99.65
ben_lt	99.58
bva_ri	99.40
txdps_rt	99.11
ben_ri	99.07
poe_ri	98.92
dos-c_ri	98.89
txdps_lt	98.82
bva_li	98.70
poe_li	98.69
txdps_ri	98.40
ben_li	98.19
txdps_li	98.02
dhs10_lt	97.75
dhs10_rt	97.73
dos-c_li	97.41
dhs2-c_ri	97.37
dhs2-c_li	97.31
dhs10_li	95.80
dhs10_ri	95.60
AVG	98.22

<b>I</b>	
ben_rt	99.52
bva_ri	99.50
ben_lt	99.34
dos-c_ri	98.91
txdps_rt	98.90
poe_ri	98.68
bva_li	98.62
ben_ri	98.62
poe_li	98.55
dhs2-c_li	98.49
txdps_lt	98.46
dhs2-c_ri	98.17
txdps_ri	98.14
dhs10_lt	97.89
dhs10_rt	97.78
txdps_li	97.36
ben_li	97.29
dos-c_li	97.17
dhs10_ri	94.63
dhs10_li	94.29
AVG	98.02

<b>J</b>	
ben_rt	99.36
ben_lt	99.16
txdps_rt	98.56
bva_ri	98.22
txdps_lt	98.04
ben_ri	97.84
txdps_ri	97.75
poe_ri	97.48
bva_li	97.12
dos-c_ri	97.05
txdps_li	96.95
poe_li	96.81
dhs10_rt	96.67
dhs2-c_ri	96.56
dhs10_lt	96.52
ben_li	96.32
dhs2-c_li	96.16
dos-c_li	94.40
dhs10_ri	92.93
dhs10_li	91.95
AVG	96.79

<b>K</b>	
ben_rt	98.18
ben_lt	97.00
bva_ri	95.64
poe_ri	94.92
txdps_rt	94.92
ben_ri	94.79
txdps_ri	94.64
dos-c_ri	94.24
txdps_li	93.68
txdps_lt	93.44
poe_li	92.87
bva_li	92.63
ben_li	91.15
dhs10_lt	90.51
dos-c_li	89.86
dhs10_rt	89.59
dhs2-c_ri	88.67
dhs2-c_li	88.17
dhs10_ri	87.36
dhs10_li	86.25
AVG	92.43

<b>L</b>	
ben_rt	97.81
ben_lt	96.78
txdps_rt	94.98
txdps_lt	93.45
ben_ri	91.82
dhs10_rt	91.50
bva_ri	91.22
dhs10_lt	90.53
poe_ri	89.88
txdps_ri	89.40
ben_li	88.54
dos-c_ri	87.80
poe_li	87.58
txdps_li	87.36
bva_li	87.26
dos-c_li	81.43
dhs2-c_ri	80.98
dhs2-c_li	80.13
dhs10_ri	79.88
dhs10_li	79.18
AVG	88.38

<b>M</b>	
ben_rt	93.09
ben_lt	88.96
poe_ri	78.68
dos-c_ri	71.06
poe_li	69.78
txdps_lt	67.58
dhs10_rt	67.22
txdps_rt	66.61
dhs10_lt	64.89
bva_ri	59.60
dos-c_li	51.55
txdps_ri	46.63
txdps_li	46.50
bva_li	45.00
ben_ri	36.13
ben_li	34.02
dhs10_ri	33.79
dhs10_li	33.65
dhs2-c_ri	23.77
dhs2-c_li	19.84
AVG	54.92

<b>N</b>	
ben_rt	98.19
ben_lt	97.39
ben_ri	96.32
bva_ri	96.18
txdps_ri	95.92
txdps_rt	95.65
poe_ri	95.46
txdps_li	94.67
txdps_lt	94.38
poe_li	94.37
bva_li	94.34
ben_li	94.13
dos-c_ri	94.01
dhs2-c_ri	92.71
dhs10_rt	91.70
dhs10_lt	90.96
dhs2-c_li	90.78
dhs10_ri	89.32
dos-c_li	88.96
dhs10_li	87.97
AVG	93.67

<b>O</b>	
ben_rt	99.40
bva_ri	99.21
ben_lt	99.03
dos-c_ri	98.80
poe_ri	98.72
ben_ri	98.70
txdps_rt	98.65
bva_li	98.42
poe_li	98.30
txdps_lt	98.17
txdps_ri	98.16
txdps_li	97.56
ben_li	97.46
dhs10_rt	97.12
dhs2-c_ri	97.11
dos-c_li	97.02
dhs2-c_li	96.80
dhs10_lt	96.67
dhs10_li	94.99
dhs10_ri	94.84
AVG	97.76

<b>P</b>	
ben_rt	99.16
bva_ri	98.69
ben_lt	98.55
poe_ri	98.21
ben_ri	98.17
dos-c_ri	98.04
txdps_rt	97.75
poe_li	97.74
bva_li	97.66
txdps_ri	97.10
txdps_lt	96.75
ben_li	96.27
txdps_li	95.85
dos-c_li	95.79
dhs2-c_ri	95.60
dhs2-c_li	95.37
dhs10_rt	95.23
dhs10_lt	94.49
dhs10_ri	92.25
dhs10_li	91.75
AVG	96.52

<b>Q</b>	
ben_rt	99.21
ben_lt	99.04
bva_ri	98.68
dos-c_ri	98.61
txdps_lt	98.32
bva_li	97.94
ben_ri	97.78
poe_ri	97.76
txdps_rt	97.26
txdps_ri	97.26
poe_li	97.22
dhs2-c_li	97.17
dos-c_li	96.69
dhs2-c_ri	96.61
dhs10_rt	96.61
dhs10_lt	96.57
txdps_li	96.32
ben_li	96.29
dhs10_ri	91.97
dhs10_li	91.86
AVG	96.96

<b>R</b>	
bva_ri	99.63
ben_rt	99.54
ben_lt	99.39
txdps_rt	99.21
dos-c_ri	99.13
txdps_lt	99.03
ben_ri	98.97
poe_ri	98.94
bva_li	98.79
poe_li	98.78
txdps_ri	98.67
dhs10_rt	98.27
txdps_li	98.25
dhs10_lt	97.98
dhs2-c_li	97.97
ben_li	97.78
dhs2-c_ri	97.68
dos-c_li	97.64
dhs10_ri	95.68
dhs10_li	95.55
AVG	98.34

Rankings for the OHIO data are split into p2p and p2r. The first 11 rows (A is the average TAR of the 10 fingers) under a vendor are p2p and the others are p2r rankings.

<b>VTB</b>	
rt	95.99
li	95.17
lt	95.02
ri	94.81
rm	91.16
lm	90.49
rr	89.14
lr	88.27
rl	80.77
ll	75.90
A	89.67

<b>A</b>	
rt	97.73
ri	97.57
li	95.99
rm	94.03
lt	94.00
lm	92.54
rr	88.27
lr	87.38
rl	81.11
ll	76.04
A	90.47

<b>B</b>	
rt	94.68
li	93.48
lt	91.62
rm	91.12
rr	90.12
lm	88.22
lr	86.56
rl	82.19
ll	78.05
ri	NA
A	88.45

<b>C</b>	
rt	99.43
lt	99.14
li	99.14
ri	99.09
rm	98.28
lm	97.88
rr	97.35
lr	96.79
rl	94.49
ll	90.95
A	97.25

<b>D</b>	
lt	99.81
rt	99.61
ri	99.52
rm	98.79
li	98.74
lm	97.95
lr	97.87
rr	97.72
rl	96.37
ll	94.59
A	98.10

rt	93.44
lt	91.90
li	90.28
ri	90.21
rm	87.76
lm	86.88
rr	82.52
lr	77.41
rl	73.25
ll	66.76
A	84.04

ri	95.98
li	95.46
rm	93.48
rt	93.02
lm	91.41
lt	90.70
rr	86.01
lr	83.51
rl	80.01
ll	76.25
A	88.58

li	88.91
rt	88.82
rm	87.40
lt	84.99
lm	84.09
rr	83.19
lr	77.91
rl	77.24
ll	73.72
ri	NA
A	82.92

ri	99.07
lt	98.71
li	98.63
rm	98.42
lm	98.33
rt	98.29
rr	97.04
lr	95.85
rl	94.90
ll	93.92
A	97.32

rt	99.39
lt	99.19
ri	99.12
li	98.74
rm	98.48
lm	98.40
rr	97.80
lr	96.70
rl	95.55
ll	94.39
A	97.78

<b>E</b>	
rt	93.82
lt	91.05
li	87.94
ri	87.53
rm	86.08
rr	82.76
lm	82.62
lr	81.47
rl	68.78
ll	64.32
A	82.64

<b>F</b>	
lt	99.89
rt	99.83
ri	99.66
rm	99.54
li	99.37
lm	99.09
rr	98.80
lr	98.58
rl	98.31
ll	96.59
A	98.97

<b>G</b>	
lt	99.66
rt	99.57
ri	99.49
li	99.08
rm	98.55
lm	97.94
rr	97.27
lr	96.77
rl	94.69
ll	92.61
A	97.56

<b>H</b>	
rt	99.89
lt	99.89
ri	99.83
rm	99.77
li	99.71
lm	99.38
rl	99.09
lr	99.07
rr	99.03
ll	98.68
A	99.43

<b>I</b>	
rt	99.89
lt	99.89
ri	99.71
rm	99.67
li	99.66
lm	99.37
rr	99.17
lr	99.03
rl	98.91
ll	97.71
A	99.30

rt	91.39
lt	88.94
rm	86.12
ri	85.88
li	85.37
lm	84.38
rr	81.27
lr	78.89
rl	70.90
ll	68.72
A	82.19

rt	99.70
lt	99.64
ri	99.37
rm	99.18
li	99.12
lm	98.84
rr	98.36
lr	97.59
rl	97.05
ll	96.03
A	98.49

lt	99.39
rt	99.30
ri	98.99
li	98.81
rm	98.56
lm	97.97
rr	96.99
lr	95.82
rl	95.15
ll	93.61
A	97.46

ri	99.81
rt	99.73
rm	99.70
lt	99.70
li	99.66
lm	99.62
rr	99.16
rl	98.79
lr	98.75
ll	98.71
A	99.36

rt	99.85
lt	99.81
ri	99.77
rm	99.58
li	99.54
lm	99.48
rr	99.08
lr	98.79
rl	98.38
ll	98.10
A	99.24

<b>J</b>	
lt	99.60
rt	99.59
ri	99.31
rm	98.96
li	98.88
lm	98.28
rr	97.81
lr	97.34
rl	95.25
ll	94.25
A	97.93

<b>K</b>	
ri	98.59
lt	98.47
rt	98.25
li	98.25
rm	96.41
lm	95.96
rr	94.87
lr	93.64
rl	93.21
ll	90.72
A	95.84

<b>L</b>	
rt	99.19
lt	99.04
ri	97.47
li	96.55
rm	96.21
lm	95.09
rr	94.44
lr	92.96
rl	85.12
ll	79.81
A	93.59

<b>M</b>	
rt	92.78
lt	89.23
li	42.89
rm	42.13
ri	37.23
lm	36.76
rr	35.73
lr	34.37
rl	21.38
ll	12.48
A	44.50

<b>N</b>	
li	98.26
rt	97.99
ri	97.96
lt	97.89
rm	96.68
lm	95.79
rr	94.95
lr	93.51
rl	93.13
ll	89.38
A	95.55

lt	99.30
rt	99.22
li	99.00
ri	98.79
rm	98.54
lm	98.23
rr	97.53
lr	96.58
rl	96.15
ll	94.42
A	97.78

ri	98.09
rt	97.88
li	97.88
lt	97.42
lm	96.21
rm	96.10
rr	94.19
lr	92.00
rl	90.07
ll	89.25
A	94.91

rt	98.82
lt	98.53
rm	97.84
ri	97.46
li	96.81
lm	96.19
rr	95.28
lr	92.19
rl	87.97
ll	84.42
A	94.55

rt	88.45
lt	83.54
rm	64.84
ri	63.61
li	59.55
lm	53.78
rr	50.89
lr	49.18
rl	30.07
ll	28.93
A	57.28

ri	98.56
li	97.98
rt	97.42
lt	97.37
rm	97.32
lm	96.84
rr	95.09
lr	93.07
rl	92.43
ll	91.32
A	95.74

<b>O</b>	
lt	99.89
rt	99.77
ri	99.77
li	99.66
rm	99.65
lm	99.14
rl	98.87
lr	98.74
rr	98.63
ll	98.40
A	99.25

<b>P</b>	
ri	99.60
lt	99.60
rt	99.49
rm	99.49
li	99.49
lm	98.86
rl	98.51
rr	98.23
lr	98.16
ll	97.19
A	98.86

<b>Q</b>	
rm	99.77
lt	99.77
rt	99.71
ri	99.71
li	99.60
lm	99.31
rr	99.30
lr	98.97
rl	98.23
ll	97.88
A	99.22

<b>R</b>	
rt	99.89
lt	99.89
ri	99.83
rm	99.72
li	99.71
lm	99.53
rr	99.23
lr	99.13
rl	99.06
ll	98.33
A	99.43

ri	99.61
rt	99.49
rm	99.43
li	99.42
lt	99.14
lm	99.14
rr	98.74
rl	98.57
ll	98.29
lr	97.97
A	98.98

ri	99.37
rm	99.26
li	99.26
lm	99.14
rt	98.86
lt	98.69
rl	97.92
rr	97.89
ll	97.39
lr	96.87
A	98.47

rt	99.71
ri	99.57
rm	99.54
lt	99.54
lm	99.49
li	99.26
rr	99.14
lr	98.86
ll	98.45
rl	98.12
A	99.17

rt	99.89
lt	99.77
rm	99.71
ri	99.71
li	99.60
lm	99.54
rr	99.18
lr	98.88
ll	98.86
rl	98.44
A	99.36



The rankings for the SD29 data are split into p2p, p2r, and r2r groups. Rows 1-6 are for plain to plain, 7-12 are for plain to rolled, and rows 13-18 are for rolled to rolled fingerprints

<b>VTB</b>	
li	80.08
rm	79.49
lt	78.97
lm	77.61
rt	76.67
ri	75.04

<b>A</b>	
rt	92.22
lt	90.28
rm	85.00
lm	81.15
li	80.28
ri	79.76

<b>B</b>	
rt	86.11
lt	83.33
ri	78.33
rm	77.36
lm	76.25
li	72.92

<b>C</b>	
rt	98.33
lt	95.00
li	94.44
rm	93.89
ri	93.33
lm	92.22

<b>D</b>	
rt	95.84
lt	95.60
ri	94.03
li	92.99
lm	92.82
rm	90.84

rt	89.21
lt	87.73
rm	83.84
lm	81.48
li	78.91
ri	78.83

rm	90.69
rt	87.10
ri	86.94
lm	85.64
lt	85.28
li	82.50

rm	80.83
ri	77.42
rt	76.53
lt	76.20
lm	75.14
li	74.03

rt	96.39
rm	95.97
lt	94.58
lm	94.03
li	93.06
ri	92.78

rt	98.46
lt	96.68
rm	95.89
lm	95.42
ri	94.29
li	93.32

rm	95.58
rt	94.72
lt	91.27
ri	89.45
lm	88.48
li	88.20

ri	93.95
rm	93.89
li	90.84
lm	90.56
rt	88.89
lt	85.32

rm	83.97
lm	82.78
ri	82.22
li	80.70
rt	77.22
lt	72.22

rm	98.33
lm	98.33
rt	97.78
ri	97.22
li	95.56
lt	93.33

rt	98.89
rm	98.89
lt	98.89
ri	98.33
li	97.78
lm	97.22

<b>E</b>	
rt	81.32
lt	77.78
li	64.17
rm	61.81
ri	61.67
lm	61.11

<b>F</b>	
lt	97.78
rt	96.39
lm	95.42
ri	94.72
li	94.44
rm	93.89

<b>G</b>	
rt	98.33
lt	97.78
lm	96.11
rm	94.03
ri	92.30
li	91.67

<b>H</b>	
rt	99.44
lt	99.44
rm	98.33
ri	98.33
lm	98.33
li	98.33

<b>I</b>	
lt	99.44
rt	98.89
lm	98.33
li	97.27
rm	97.22
ri	96.25

rt	82.50
lt	79.60
rm	71.77
lm	68.44
li	66.87
ri	66.03

rt	98.75
rm	97.81
lm	97.53
lt	97.52
ri	96.26
li	95.70

rt	98.98
lt	97.85
rm	97.50
lm	96.85
ri	96.25
li	94.44

rt	99.86
rm	99.58
lm	99.44
ri	99.31
lt	98.75
li	98.61

rt	99.72
lm	99.03
rm	98.89
ri	98.73
lt	98.65
li	98.28

rt	86.67
rm	85.00
ri	83.33
lm	82.78
lt	81.67
Li	79.03

rm	99.44
ri	99.44
rt	98.89
lt	98.89
lm	98.41
li	97.78

lt	99.73
li	99.49
rt	99.44
rm	99.44
ri	99.44
lm	99.44

rt	100.00
rm	100.00
ri	100.00
lt	100.00
lm	100.00
li	100.00

rt	100.00
rm	100.00
ri	100.00
lm	100.00
li	100.00
lt	99.44

<b>J</b>	
rt	99.44
lt	98.33
ri	97.78
lm	97.22
rm	95.84
li	94.03

<b>K</b>	
rm	95.06
li	94.03
lm	92.78
rt	90.56
ri	90.56
lt	89.37

<b>L</b>	
lt	92.36
rt	92.22
lm	85.87
ri	85.70
li	84.58
rm	82.78

<b>M</b>	
rt	89.44
lt	89.44
rm	33.89
li	28.47
ri	24.44
lm	23.89

<b>N</b>	
lt	97.22
rt	95.00
ri	93.41
rm	93.33
li	92.22
lm	89.83

rt	98.89
lm	98.50
lt	98.19
rm	97.92
ri	97.29
li	95.75

rm	96.03
rt	95.42
li	94.62
lm	94.58
lt	94.28
ri	93.04

rt	94.17
lt	93.19
lm	88.99
rm	88.28
ri	86.54
li	83.09

rt	83.69
lt	82.76
rm	49.03
ri	46.26
lm	43.66
li	42.69

rt	96.60
rm	95.83
lt	95.28
ri	94.63
lm	94.17
li	93.75

li	100.0
rt	99.44
lt	99.44
rm	98.89
ri	98.89
lm	98.89

rt	100.00
rm	98.33
lm	97.78
li	96.82
lt	96.67
ri	95.56

rm	99.44
rt	98.89
lm	98.33
lt	97.22
li	95.56
ri	95.08

rm	90.56
ri	87.22
rt	86.90
lm	85.00
lt	81.81
li	79.86

rt	98.89
rm	97.61
lt	96.11
ri	95.56
lm	95.56
li	95.56

<b>O</b>	
ri	99.44
rt	98.89
lm	98.37
lt	98.33
rm	97.22
li	97.22

<b>P</b>	
rt	98.33
lt	98.33
rm	97.78
li	97.22
ri	96.67
lm	96.67

<b>Q</b>	
rt	100.0
lt	100.0
lm	96.81
li	96.25
rm	96.11
ri	93.97

<b>R</b>	
rt	100.00
lt	99.44
lm	99.44
rm	98.89
ri	98.33
li	97.22

rt	99.31
ri	99.03
lm	98.96
rm	98.75
lt	98.61
li	98.61

rt	98.19
ri	97.87
lt	97.78
rm	97.36
li	97.36
lm	96.67

rt	99.44
lm	99.17
lt	98.61
rm	98.33
ri	97.78
li	96.67

rt	100.00
ri	99.35
rm	99.31
lm	99.31
lt	99.17
li	97.92

rt	100.0
rm	100.0
ri	100.0
lm	100.0
li	100.0
lt	98.89

lm	100.0
rt	98.89
rm	98.89
ri	98.89
li	98.89
lt	97.78

rt	100.0
rm	100.0
lt	100.0
ri	99.44
lm	99.44
li	99.44

rt	100.00
rm	100.00
ri	100.00
lt	100.00
lm	100.00
li	99.44