Truth Table for PRIORITY ENCODER

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3x8 PRIORITY ENCODER

EN	x1	x2	x3	x4	x5	x6	x7	x8	m3	m2	m1
0	x	x	x	x	x	x	x	x	0	0	0
1	1	0	0	0	0	0	0	0	0	0	0
1	x	1	0	0	0	0	0	0	0	0	1
1	x	x	1	0	0	0	0	0	0	1	0
1	x	x	x	1	0	0	0	0	0	1	1
1	x	x	x	x	1	0	0	0	1	0	0
1	x	x	x	x	x	1	0	0	1	0	1
1	x	x	x	x	x	x	1	0	1	1	0
1	x	x	x	x	x	x	x	1	1	1	1

Simplification of Expressions for m3, m2 & m1:

m3 = x5.x6'.x7'.x8' + x6.x7'.x8' + x7.x8' + x8
. = (x7 + x8) + x7'.x8'.(x5 + x6)
. = x7 + x8 + x5 + x6
m3 = x7 + x8 + x5 + x6

m2 = x3.x4'.x5'.x6'.x7'.x8' + x4.x5'.x6'.x7'.x8' + x7x8' + x8
. = x5'.x6'.x7'.(x4 + x3) + x8 + x7
. = x5'.x6'(x4 + x3) + x7 + x8
m2 = x5'.x6'(x4 + x3) + x7 + x8

m1 = x2.x3'.x4'.x5'.x6'.x7'.x8' + x4.x5'.x6'.x7'.x8' + x6.x7'.x8' + x8
. = x8 + x7'.[x5'.(x2.x3' + x4) + x6]
. = x8 + x7'.(x5'.x3'.x2 + x5'.x4 + x6)
m1 = x8 + x7'.(x5'.x3'.x2 + x5'.x4 + x6