1 BLT set 3 over $\mathbf{GF}(47)$

Points on the quadric $x_0^2 + x_1x_2 + x_3x_4$:

$P_1 = (0, 1, 0, 0, 0)$

$P_2 = (0, 0, 1, 0, 0)$

$P_3 = (0, 1, 28, 46, 28)$

$P_4 = (0, 1, 7, 23, 14)$

$P_5 = (0, 1, 24, 31, 25)$

$P_6 = (0, 1, 2, 15, 3)$

$P_7 = (1, 32, 1, 12, 9)$

$P_8 = (1, 39, 35, 16, 38)$

$P_9 = (1, 42, 25, 12, 26)$

$P_{10} = (1, 45, 44, 42, 39)$

$P_{11} = (1, 42, 16, 38, 33)$

$P_{12} = (1, 46, 22, 13, 45)$

$P_{13} = (1, 30, 46, 44, 6)$

$P_{14} = (1, 25, 12, 8, 27)$

$P_{15} = (1, 22, 31, 33, 32)$

$P_{16} = (1, 11, 31, 7, 25)$

$P_{17} = (1, 38, 38, 39, 22)$

$P_{18} = (1, 29, 20, 4, 31)$

$P_{19} = (1, 44, 19, 36, 12)$

$P_{20} = (1, 42, 8, 32, 35)$

$P_{21} = (1, 5, 23, 27, 34)$

$P_{22} = (1, 30, 45, 12, 1)$

$P_{23} = (1, 17, 3, 27, 12)$

$P_{24} = (1, 12, 34, 26, 15)$

$P_{25} = (1, 8, 14, 8, 27)$

$P_{26} = (1, 5, 40, 7, 25)$

$P_{27} = (1, 7, 18, 26, 15)$

$P_{28} = (1, 41, 10, 39, 22)$

$P_{29} = (1, 17, 2, 21, 14)$

$P_{30} = (1, 31, 31, 27, 34)$

$P_{31} = (1, 2, 3, 40, 1)$

$P_{32} = (1, 15, 45, 44, 6)$

$P_{33} = (1, 2, 2, 27, 12)$

$P_{34} = (1, 21, 16, 32, 35)$

$P_{35} = (1, 35, 45, 38, 8)$

$P_{36} = (1, 9, 37, 30, 39)$

$P_{37} = (1, 30, 29, 38, 8)$

$P_{38} = (1, 36, 7, 18, 46)$

$P_{39} = (1, 5, 33, 33, 32)$

$P_{40} = (1, 40, 13, 33, 7)$

$P_{41} = (1, 45, 44, 29, 3)$

$P_{42} = (1, 17, 2, 42, 7)$

$P_{43} = (1, 16, 24, 11, 12)$

$P_{44} = (1, 26, 39, 6, 11)$

$P_{45} = (1, 6, 28, 33, 2)$

$P_{46} = (1, 18, 27, 33, 18)$

$P_{47} = (1, 3, 9, 33, 2)$

$P_{48} = (1, 1, 16, 12, 26)$

Stabilizer of order 2304 is generated by:

$$g_1 = \begin{pmatrix} 23 & 0 & 0 & 14 & 16 \\ 0 & 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 \\ 39 & 0 & 0 & 12 & 26 \\ 40 & 0 & 0 & 39 & 12 \end{pmatrix}$$

$$g_2 = \begin{pmatrix} 23 & 0 & 0 & 33 & 31 \\ 0 & 46 & 0 & 0 & 0 \\ 0 & 45 & 46 & 32 & 44 \\ 8 & 44 & 0 & 12 & 26 \\ 7 & 32 & 0 & 39 & 12 \end{pmatrix}$$

$$g_3 = \begin{pmatrix} 29 & 0 & 0 & 8 & 36 \\ 0 & 46 & 0 & 0 & 0 \\ 0 & 0 & 46 & 0 & 0 \\ 18 & 0 & 0 & 32 & 31 \\ 4 & 0 & 0 & 23 & 32 \end{pmatrix}$$

$$g_4 = \begin{pmatrix} 23 & 0 & 0 & 33 & 31 \\ 0 & 46 & 19 & 1 & 19 \\ 0 & 0 & 46 & 0 & 0 \\ 8 & 0 & 19 & 12 & 26 \\ 7 & 0 & 1 & 39 & 12 \end{pmatrix}$$

$$g_5 = \begin{pmatrix} 24 & 0 & 0 & 33 & 31 \\ 0 & 0 & 22 & 0 & 0 \\ 0 & 15 & 0 & 0 & 0 \\ 8 & 0 & 0 & 35 & 21 \\ 7 & 0 & 0 & 8 & 35 \end{pmatrix}$$

$$g_6 = \begin{pmatrix} 33 & 2 & 0 & 20 & 2 \\ 0 & 1 & 0 & 0 & 0 \\ 41 & 32 & 1 & 11 & 28 \\ 19 & 9 & 0 & 6 & 26 \\ 3 & 12 & 0 & 46 & 9 \end{pmatrix}$$

$$g_7 = \begin{pmatrix} 20 & 12 & 34 & 42 & 11 \\ 17 & 45 & 10 & 44 & 27 \\ 21 & 19 & 45 & 46 & 27 \\ 22 & 9 & 27 & 41 & 35 \\ 46 & 42 & 44 & 27 & 29 \end{pmatrix}$$

The induced group has order 2304 and is generated by:

g_1 =(7, 19, 44)(8, 38, 29)(9, 24, 15)(10, 22, 18)(11, 12, 40)(13, 45, 20)(14, 26, 35)(16, 37, 25)(17, 30, 33)(21, 23, 28)(27, 39, 48)(31, 42, 46)(32, 47, 34)(36, 43, 41)

g_2 =(2, 5)(3, 4)(7, 20, 19, 13, 44, 45)(8, 35, 38, 14, 29, 26)(9, 11, 24, 12, 15, 40)(10, 46, 22, 31, 18, 42)(16, 39, 37, 48, 25, 27)(17, 32, 30, 47, 33, 34)(21, 36, 23, 43, 28, 41)

g_3 =(9, 24)(10, 31)(12, 40)(16, 37)(17, 30)(18, 42)(19, 44)(20, 45)(21, 28)(22, 46)(26, 35)(27, 48)(29, 38)(34, 47)(36, 43)

g_4 =(1, 3)(5, 6)(7, 34, 19, 32, 44, 47)(8, 37, 38, 25, 29, 16)(9, 14, 24, 26, 15, 35)(10, 46, 22, 31, 18, 42)(11, 27, 12, 39, 40, 48)(13, 21, 45, 23, 20, 28)(17, 41, 30, 36, 33, 43)

g_5 =(1, 2)(3, 5)(4, 6)(7, 19, 44)(8, 38, 29)(9, 27, 15, 48, 24, 39)(10, 22, 18)(11, 12, 40)(13, 47, 20, 32, 45, 34)(14, 16, 35, 25, 26, 37)(17, 21, 33, 28, 30, 23)(31, 42, 46)(36, 43, 41)

g_6 =(2, 44, 45, 7)(3, 21, 36, 23)(4, 43, 28, 41)(5, 20, 19, 13)(8, 35, 14, 29)(10, 46, 39, 27)(11, 24, 15, 40)(16, 22, 48, 42)(18, 25, 37, 31)(30, 33, 34, 32)

g_7 =(1, 15)(2, 37, 44, 22, 13, 46, 19, 16)(3, 38, 21, 35, 41, 26, 28, 29)(4, 27, 43, 42, 23, 18, 36, 48)(5, 12, 20, 24, 7, 9, 45, 40)(6, 14)(8, 32)(10, 34, 25, 47, 31, 30, 39, 17)(11, 33)

Kernel has order 1 and is generated by:

There are 1 orbits on the BLT set.

The orbit length are [48]

The orbits are:

$O_0 = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34,$

(length 48)