1 BLT set 9 over GF(29)

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

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

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

$P_3 = (0, 1, 14, 28, 14)$

$P_4 = (0, 1, 11, 12, 16)$

$P_5 = (1, 8, 7, 1, 1)$

$P_6 = (1, 10, 25, 11, 22)$

$P_7 = (1, 19, 6, 14, 27)$

$P_8 = (1, 11, 28, 6, 21)$

$P_9 = (1, 25, 11, 20, 21)$

$P_{10} = (1, 24, 14, 17, 16)$

$P_{11} = (1, 24, 11, 24, 24)$

$P_{12} = (1, 6, 12, 3, 24)$

$P_{13} = (1, 22, 8, 5, 11)$

$P_{14} = (1, 6, 26, 11, 20)$

$P_{15} = (1, 27, 1, 8, 11)$

$P_{16} = (1, 21, 9, 5, 20)$

$P_{17} = (1, 10, 25, 3, 13)$

$P_{18} = (1, 14, 28, 1, 13)$

$P_{19} = (1, 7, 21, 14, 6)$

$P_{20} = (1, 1, 11, 7, 19)$

$P_{21} = (1, 26, 24, 7, 6)$

$P_{22} = (1, 11, 28, 28, 19)$

$P_{23} = (1, 10, 16, 6, 7)$

$P_{24} = (1, 17, 5, 25, 7)$

$P_{25} = (1, 11, 6, 26, 3)$

$P_{26} = (1, 3, 13, 24, 8)$

$P_{27} = (1, 5, 15, 23, 3)$

$P_{28} = (1, 27, 25, 17, 8)$

$P_{29} = (1, 6, 15, 20, 23)$

$P_{30} = (1, 15, 20, 26, 23)$

Stabilizer of order 24360 is generated by:

$$g_1 = \begin{pmatrix} 24 & 0 & 0 & 12 & 27 \\ 0 & 0 & 8 & 0 & 0 \\ 0 & 11 & 0 & 0 & 0 \\ 28 & 0 & 0 & 2 & 14 \\ 6 & 0 & 0 & 11 & 2 \end{pmatrix}$$

$$g_2 = \begin{pmatrix} 5 & 17 & 9 & 3 & 28 \\ 19 & 16 & 11 & 6 & 12 \\ 23 & 10 & 16 & 23 & 23 \\ 14 & 23 & 12 & 11 & 23 \\ 16 & 23 & 6 & 9 & 11 \end{pmatrix}$$

$$g_3 = \begin{pmatrix} 0 & 19 & 0 & 14 & 27 \\ 0 & 23 & 0 & 0 & 0 \\ 4 & 18 & 24 & 27 & 21 \\ 15 & 24 & 0 & 22 & 28 \\ 15 & 24 & 0 & 7 & 1 \end{pmatrix}$$

$$g_4 = \begin{pmatrix} 26 & 0 & 0 & 19 & 24 \\ 0 & 6 & 0 & 0 & 0 \\ 0 & 0 & 5 & 0 & 0 \\ 23 & 0 & 0 & 28 & 7 \\ 10 & 0 & 0 & 25 & 25 \end{pmatrix}$$

$$g_5 = \begin{pmatrix} 22 & 0 & 0 & 9 & 14 \\ 0 & 25 & 0 & 0 & 0 \\ 0 & 0 & 7 & 0 & 0 \\ 17 & 0 & 0 & 28 & 28 \\ 1 & 0 & 0 & 13 & 20 \end{pmatrix}$$

$$g_6 = \begin{pmatrix} 10 & 0 & 0 & 17 & 1 \\ 0 & 5 & 0 & 0 & 0 \\ 0 & 0 & 6 & 0 & 0 \\ 16 & 0 & 0 & 27 & 12 \\ 27 & 0 & 0 & 18 & 3 \end{pmatrix}$$

Induced action on the BLT-set:

The induced group has order 24360 and is generated by:

g_1 =(1, 2)(3, 6)(4, 5)(7, 9)(10, 12)(13, 18)(14, 17)(15, 16)(19, 24)(20, 23)(21, 22)(25, 30)(26, 29)(27, 28)

g_2 =(1, 6)(2, 5)(3, 4)(8, 9)(11, 12)(13, 15)(14, 16)(17, 18)(19, 21)(20, 22)(23, 24)(25, 27)(26, 28)(29, 30)

g_3 =(2, 7, 8, 22, 15, 24, 26, 13, 18, 19, 10, 4, 3, 5)(6, 11, 16, 30, 27, 21, 28, 29, 20, 14, 17, 12, 23, 9)

g_4 =(3, 12, 11, 10, 6, 23, 20)(4, 14, 18, 22, 27, 29, 9)(5, 7, 26, 28, 21, 13, 17)(8, 19, 16, 25, 30, 15, 24)

g_5 =(3, 25, 10, 24, 20, 16, 11, 15, 23, 19, 12, 30, 6, 8)(4, 17, 22, 26, 9, 13, 18, 7, 29, 21, 14, 5, 27, 28)

g_6 =(3, 7, 25, 29, 10, 21, 24, 14, 20, 5, 16, 27, 11, 28, 15, 4, 23, 17, 19, 22, 12, 26, 30, 9, 6, 13, 8, 18)

Kernel has order 1 and is generated by:

There are 1 orbits on the BLT set.

The orbit length are [30]

The orbits are:

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