1 BLT set 5 over GF(59)

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

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

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

$P_3 = (0, 1, 29, 58, 29)$

$P_4 = (0, 1, 22, 29, 44)$

$P_5 = (0, 1, 12, 39, 36)$

$P_6 = (1, 5, 15, 43, 49)$

$P_7 = (1, 52, 31, 10, 57)$

$P_8 = (1, 57, 21, 9, 57)$

$P_9 = (1, 21, 45, 41, 46)$

$P_{10} = (1, 14, 24, 49, 16)$

$P_{11} = (1, 11, 38, 1, 53)$

$P_{12} = (1, 10, 13, 15, 7)$

$P_{13} = (1, 24, 40, 22, 18)$

$P_{14} = (1, 43, 50, 54, 29)$

$P_{15} = (1, 48, 20, 22, 18)$

$P_{16} = (1, 49, 15, 52, 4)$

$P_{17} = (1, 30, 44, 53, 53)$

$P_{18} = (1, 52, 58, 40, 47)$

$P_{19} = (1, 43, 34, 38, 50)$

$P_{20} = (1, 56, 52, 37, 1)$

$P_{21} = (1, 55, 10, 25, 11)$

$P_{22} = (1, 5, 12, 31, 38)$

$P_{23} = (1, 2, 42, 9, 43)$

$P_{24} = (1, 46, 7, 16, 13)$

$P_{25} = (1, 47, 37, 8, 48)$

$P_{26} = (1, 4, 51, 56, 29)$

$P_{27} = (1, 4, 4, 4, 40)$

$P_{28} = (1, 32, 42, 55, 56)$

$P_{29} = (1, 41, 27, 53, 47)$

$P_{30} = (1, 34, 39, 23, 9)$

$P_{31} = (1, 5, 25, 44, 32)$

$P_{32} = (1, 23, 54, 58, 4)$

$P_{33} = (1, 29, 7, 33, 26)$

$P_{34} = (1, 6, 24, 54, 29)$

$P_{35} = (1, 50, 43, 41, 31)$

$P_{36} = (1, 34, 33, 10, 47)$

$P_{37} = (1, 48, 35, 6, 5)$

$P_{38} = (1, 29, 57, 41, 46)$

$P_{39} = (1, 18, 13, 2, 30)$

$P_{40} = (1, 5, 46, 26, 7)$

$P_{41} = (1, 12, 5, 46, 41)$

$P_{42} = (1, 50, 30, 28, 37)$

$P_{43} = (1, 57, 45, 54, 53)$

$P_{44} = (1, 24, 50, 32, 27)$

$P_{45} = (1, 20, 4, 15, 30)$

$P_{46} = (1, 35, 25, 46, 22)$

$P_{47} = (1, 10, 14, 53, 53)$

$P_{48} = (1, 33, 37, 28, 28)$

$P_{49} = (1, 36, 5, 17, 31)$

$P_{50} = (1, 26, 12, 2, 50)$

$P_{51} = (1, 1, 53, 6, 50)$

$P_{52} = (1, 49, 1, 50, 58)$

$P_{53} = (1, 9, 35, 49, 8)$

$P_{54} = (1, 7, 19, 33, 46)$

$P_{55} = (1, 17, 25, 19, 49)$

$P_{56} = (1, 10, 10, 46, 35)$

$P_{57} = (1, 1, 28, 24, 16)$

$P_{58} = (1, 39, 13, 23, 1)$

$P_{59} = (1, 2, 43, 22, 47)$

$P_{60} = (1, 31, 42, 49, 30)$

Stabilizer of order 120 is generated by:

$$g_1 = \begin{pmatrix} 40 & 0 & 0 & 37 & 11 \\ 0 & 58 & 0 & 0 & 0 \\ 0 & 8 & 58 & 55 & 57 \\ 35 & 57 & 0 & 10 & 25 \\ 48 & 55 & 0 & 41 & 10 \end{pmatrix}$$

with 60 fixed points

$$g_2 = \begin{pmatrix} 12 & 20 & 36 & 30 & 44 \\ 30 & 58 & 40 & 34 & 58 \\ 9 & 10 & 38 & 13 & 19 \\ 20 & 28 & 31 & 36 & 50 \\ 12 & 1 & 49 & 29 & 32 \end{pmatrix}$$

with 0 fixed points

$$g_3 = \begin{pmatrix} 28 & 34 & 10 & 51 & 15 \\ 4 & 45 & 48 & 8 & 23 \\ 58 & 49 & 46 & 44 & 52 \\ 7 & 11 & 53 & 46 & 35 \\ 0 & 20 & 28 & 51 & 11 \end{pmatrix}$$

with 0 fixed points The induced group has order 120 and is generated by:

g_1 =(49)(45)(7)(1)(3)(22)(8, 37)(26, 59)(13, 46)(12, 55)(31, 39)(14, 42)(15, 28)(16, 60)(11, 34)(6, 32)(20, 38)(19, 43)(21, 27)(10, 29)(24, 57)(25, 41)(18, 47)(52, 54)(33, 50)(35, 36)(40, 51)(44, 58)(17, 30)(48, 53)(9, 56)(5, 23)(2, 4)

g_2 =(47, 48, 57)(18, 24, 53)(3, 56, 60, 45, 16, 9)(6, 54, 13, 58, 15, 20)(7, 27, 30, 49, 17, 21)(12, 33, 19, 42, 36, 26)(14, 43, 50, 55, 59, 35)(4, 40, 5, 29, 34, 41)(28, 44, 46, 52, 32, 38)(2, 25, 11,

10, 23, 51)(1, 8, 31, 22, 39, 37)

g_3 =(2, 12, 15)(3, 41, 21)(4, 47, 32)(5, 46, 35)(6, 36, 24)(7, 38, 37)(8, 52, 58)(10, 60, 49)(11, 13, 53)(14, 26, 56)(16, 25, 40)(17, 20, 44)(18, 19, 23)(22, 54, 30)(27, 29, 51)(28, 48, 43)(31, 45, 42)(33, 59, 39)(34, 55, 57)(1, 50, 9)

Kernel has order 1 and is generated by:

There are 1 orbits on the BLT set.

The orbit length are [60]

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 60)