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:


Kernel has order 1 and is generated by:

There are 1 orbits on the BLT set.
The orbit length are [60]
The orbits are:
$O_0 = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60\}$
(length 60)