Rank-65919 over GF(16)

January 15, 2021

The equation

The equation of the surface is :

$$X_2^3 + X_3^3 + X_0^2X_1 + X_0^2X_2 + X_0^2X_3 + X_1^2X_2 + X_0X_1X_2 = 0$$

(0, 0, 1, 1, 1, 1, 1, 0, 1, 0, 0, 0, 0, 0, 0, 0, 1, 0, 0, 0)
The point rank of the equation over GF(16) is 304226837

General information

Number of lines	1
Number of points	273
Number of singular points	1
Number of Eckardt points	0
Number of double points	0
Number of single points	17
Number of points off lines	256
Number of Hesse planes	0
Number of axes	0
Type of points on lines	17
Type of lines on points	1^{17}, 0^{256}

Singular Points

The surface has 1 singular points:

$0: \ P_{531} = \mathbf{P}(1,0,1,1) = \mathbf{P}(1,0,1,1)$

The 1 Lines

The lines and their Pluecker coordinates are:

$$\ell_0 = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix}_{257} = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix}_{257} = \mathbf{Pl}(0,0,1,0,1,0)_{320}$$

Rank of lines: (257)
Rank of points on Klein quadric: (320)

Eckardt Points

The surface has 0 Eckardt points:

Double Points

The surface has 0 Double points:
The double points on the surface are:

Single Points

The surface has 17 single points:
The single points on the surface are:

0 : $P_0 = (1,0,0,0)$ lies on line ℓ_0
1 : $P_{530} = (0,0,1,1)$ lies on line ℓ_0
2 : $P_{531} = (1,0,1,1)$ lies on line ℓ_0
3 : $P_{532} = (2,0,1,1)$ lies on line ℓ_0
4 : $P_{533} = (3,0,1,1)$ lies on line ℓ_0
5 : $P_{534} = (4,0,1,1)$ lies on line ℓ_0
6 : $P_{535} = (5,0,1,1)$ lies on line ℓ_0
7 : $P_{536} = (6,0,1,1)$ lies on line ℓ_0
8 : $P_{537} = (7,0,1,1)$ lies on line ℓ_0
9 : $P_{538} = (8,0,1,1)$ lies on line ℓ_0
10 : $P_{539} = (9,0,1,1)$ lies on line ℓ_0
11 : $P_{540} = (10,0,1,1)$ lies on line ℓ_0
12 : $P_{541} = (11,0,1,1)$ lies on line ℓ_0
13 : $P_{542} = (12,0,1,1)$ lies on line ℓ_0
14 : $P_{543} = (13,0,1,1)$ lies on line ℓ_0
15 : $P_{544} = (14,0,1,1)$ lies on line ℓ_0
16 : $P_{545} = (15,0,1,1)$ lies on line ℓ_0

The single points on the surface are:

Points on surface but on no line

The surface has 256 points not on any line:
The points on the surface but not on lines are:

0 : $P_1 = (0,1,0,0)$
1 : $P_{20} = (1,0,1,0)$
2 : $P_{35} = (0,1,1,0)$
3 : $P_{119} = (4,6,1,0)$
4 : $P_{126} = (11,6,1,0)$
5 : $P_{142} = (11,7,1,0)$
6 : $P_{145} = (14,7,1,0)$
7 : $P_{181} = (2,10,1,0)$
8 : $P_{188} = (9,10,1,0)$
9 : $P_{199} = (4,11,1,0)$
10 : $P_{209} = (14,11,1,0)$
11 : $P_{213} = (2,12,1,0)$
12 : $P_{221} = (10,12,1,0)$
13 : $P_{236} = (9,13,1,0)$
14 : $P_{237} = (10,13,1,0)$
15 : $P_{275} = (1,0,0,1)$
16 : $P_{311} = (5,2,0,1)$
17 : $P_{329} = (7,3,0,1)$
18 : $P_{346} = (8,4,0,1)$
19 : $P_{366} = (12,5,0,1)$
20 : $P_{379} = (9,6,0,1)$
21 : $P_{388} = (2,7,0,1)$
22 : $P_{408} = (6,8,0,1)$
23 : $P_{433} = (15,9,0,1)$
24 : $P_{445} = (11,10,0,1)$
25 : $P_{460} = (10,11,0,1)$
26 : $P_{470} = (4,12,0,1)$
27 : $P_{496} = (14,13,0,1)$

28 : $P_{501} = (3, 14, 0, 1)$
29 : $P_{527} = (13, 15, 0, 1)$
30 : $P_{555} = (10, 1, 1, 1)$
31 : $P_{556} = (11, 1, 1, 1)$
32 : $P_{627} = (2, 6, 1, 1)$
33 : $P_{628} = (3, 6, 1, 1)$
34 : $P_{649} = (8, 7, 1, 1)$
35 : $P_{650} = (9, 7, 1, 1)$
36 : $P_{701} = (12, 10, 1, 1)$
37 : $P_{702} = (13, 10, 1, 1)$
38 : $P_{711} = (6, 11, 1, 1)$
39 : $P_{712} = (7, 11, 1, 1)$
40 : $P_{735} = (14, 12, 1, 1)$
41 : $P_{736} = (15, 12, 1, 1)$
42 : $P_{741} = (4, 13, 1, 1)$
43 : $P_{742} = (5, 13, 1, 1)$
44 : $P_{798} = (13, 0, 2, 1)$
45 : $P_{826} = (9, 2, 2, 1)$
46 : $P_{830} = (13, 2, 2, 1)$
47 : $P_{845} = (12, 3, 2, 1)$
48 : $P_{865} = (0, 5, 2, 1)$
49 : $P_{868} = (3, 5, 2, 1)$
50 : $P_{916} = (3, 8, 2, 1)$
51 : $P_{928} = (15, 8, 2, 1)$
52 : $P_{931} = (2, 9, 2, 1)$
53 : $P_{937} = (8, 9, 2, 1)$
54 : $P_{953} = (8, 10, 2, 1)$
55 : $P_{960} = (15, 10, 2, 1)$
56 : $P_{986} = (9, 12, 2, 1)$
57 : $P_{989} = (12, 12, 2, 1)$
58 : $P_{1054} = (13, 0, 3, 1)$
59 : $P_{1071} = (14, 1, 3, 1)$
60 : $P_{1072} = (15, 1, 3, 1)$
61 : $P_{1081} = (8, 2, 3, 1)$
62 : $P_{1110} = (5, 4, 3, 1)$
63 : $P_{1112} = (7, 4, 3, 1)$
64 : $P_{1137} = (0, 6, 3, 1)$
65 : $P_{1151} = (14, 6, 3, 1)$
66 : $P_{1160} = (7, 7, 3, 1)$
67 : $P_{1166} = (13, 7, 3, 1)$
68 : $P_{1204} = (3, 10, 3, 1)$
69 : $P_{1211} = (10, 10, 3, 1)$
70 : $P_{1270} = (5, 14, 3, 1)$
71 : $P_{1275} = (10, 14, 3, 1)$
72 : $P_{1289} = (8, 15, 3, 1)$
73 : $P_{1296} = (15, 15, 3, 1)$
74 : $P_{1304} = (7, 0, 4, 1)$
75 : $P_{1368} = (7, 4, 4, 1)$
76 : $P_{1375} = (14, 4, 4, 1)$
77 : $P_{1383} = (6, 5, 4, 1)$
78 : $P_{1399} = (6, 6, 4, 1)$
79 : $P_{1407} = (14, 6, 4, 1)$
80 : $P_{1425} = (0, 8, 4, 1)$
81 : $P_{1430} = (5, 8, 4, 1)$
82 : $P_{1476} = (3, 11, 4, 1)$
83 : $P_{1488} = (15, 11, 4, 1)$
84 : $P_{1525} = (4, 14, 4, 1)$
85 : $P_{1536} = (15, 14, 4, 1)$
86 : $P_{1540} = (3, 15, 4, 1)$
87 : $P_{1542} = (5, 15, 4, 1)$
88 : $P_{1560} = (7, 0, 5, 1)$
89 : $P_{1571} = (2, 1, 5, 1)$
90 : $P_{1572} = (3, 1, 5, 1)$
91 : $P_{1593} = (8, 2, 5, 1)$
92 : $P_{1596} = (11, 2, 5, 1)$
93 : $P_{1604} = (3, 3, 5, 1)$
94 : $P_{1616} = (15, 3, 5, 1)$
95 : $P_{1632} = (15, 4, 5, 1)$
96 : $P_{1705} = (8, 9, 5, 1)$
97 : $P_{1709} = (12, 9, 5, 1)$
98 : $P_{1734} = (5, 11, 5, 1)$
99 : $P_{1740} = (11, 11, 5, 1)$
100 : $P_{1752} = (7, 12, 5, 1)$
101 : $P_{1757} = (12, 12, 5, 1)$
102 : $P_{1761} = (0, 13, 5, 1)$
103 : $P_{1763} = (2, 13, 5, 1)$
104 : $P_{1820} = (11, 0, 6, 1)$
105 : $P_{1844} = (3, 2, 6, 1)$
106 : $P_{1849} = (8, 2, 6, 1)$
107 : $P_{1873} = (0, 4, 6, 1)$
108 : $P_{1881} = (8, 4, 6, 1)$
109 : $P_{1891} = (2, 5, 6, 1)$
110 : $P_{1902} = (13, 5, 6, 1)$
111 : $P_{1925} = (4, 7, 6, 1)$
112 : $P_{1938} = (1, 8, 6, 1)$
113 : $P_{1948} = (11, 8, 6, 1)$
114 : $P_{2004} = (3, 12, 6, 1)$
115 : $P_{2005} = (4, 12, 6, 1)$
116 : $P_{2018} = (1, 13, 6, 1)$
117 : $P_{2030} = (13, 13, 6, 1)$
118 : $P_{2035} = (2, 14, 6, 1)$
119 : $P_{2039} = (6, 14, 6, 1)$
120 : $P_{2076} = (11, 0, 7, 1)$
121 : $P_{2114} = (1, 3, 7, 1)$
122 : $P_{2124} = (11, 3, 7, 1)$
123 : $P_{2136} = (7, 4, 7, 1)$
124 : $P_{2138} = (9, 4, 7, 1)$
125 : $P_{2175} = (14, 6, 7, 1)$
126 : $P_{2212} = (3, 9, 7, 1)$
127 : $P_{2217} = (8, 9, 7, 1)$
128 : $P_{2258} = (1, 12, 7, 1)$
129 : $P_{2269} = (12, 12, 7, 1)$
130 : $P_{2281} = (8, 13, 7, 1)$
131 : $P_{2287} = (14, 13, 7, 1)$
132 : $P_{2289} = (0, 14, 7, 1)$
133 : $P_{2292} = (3, 14, 7, 1)$
134 : $P_{2314} = (9, 15, 7, 1)$
135 : $P_{2317} = (12, 15, 7, 1)$

$136: P_{2333} = (12, 0, 8, 1)$
$137: P_{2341} = (4, 1, 8, 1)$
$138: P_{2342} = (5, 1, 8, 1)$
$139: P_{2395} = (10, 4, 8, 1)$
$140: P_{2400} = (15, 4, 8, 1)$
$141: P_{2404} = (3, 5, 8, 1)$
$142: P_{2406} = (5, 5, 8, 1)$
$143: P_{2423} = (6, 6, 8, 1)$
$144: P_{2429} = (12, 6, 8, 1)$
$145: P_{2433} = (0, 7, 8, 1)$
$146: P_{2437} = (4, 7, 8, 1)$
$147: P_{2468} = (3, 9, 8, 1)$
$148: P_{2489} = (8, 10, 8, 1)$
$149: P_{2491} = (10, 10, 8, 1)$
$150: P_{2551} = (6, 14, 8, 1)$
$151: P_{2560} = (15, 14, 8, 1)$
$152: P_{2589} = (12, 0, 9, 1)$
$153: P_{2612} = (3, 2, 9, 1)$
$154: P_{2618} = (9, 2, 9, 1)$
$155: P_{2630} = (5, 3, 9, 1)$
$156: P_{2633} = (8, 3, 9, 1)$
$157: P_{2718} = (13, 8, 9, 1)$
$158: P_{2723} = (2, 9, 9, 1)$
$159: P_{2733} = (12, 9, 9, 1)$
$160: P_{2740} = (3, 10, 9, 1)$
$161: P_{2742} = (5, 10, 9, 1)$
$162: P_{2787} = (2, 13, 9, 1)$
$163: P_{2798} = (13, 13, 9, 1)$
$164: P_{2817} = (0, 15, 9, 1)$
$165: P_{2825} = (8, 15, 9, 1)$
$166: P_{2833} = (0, 0, 10, 1)$
$167: P_{2859} = (10, 1, 10, 1)$
$168: P_{2860} = (11, 1, 10, 1)$
$169: P_{2898} = (1, 4, 10, 1)$
$170: P_{2911} = (14, 4, 10, 1)$
$171: P_{2916} = (3, 5, 10, 1)$
$172: P_{2927} = (14, 5, 10, 1)$
$173: P_{2996} = (3, 10, 10, 1)$
$174: P_{3001} = (8, 10, 10, 1)$
$175: P_{3020} = (11, 11, 10, 1)$
$176: P_{3058} = (1, 14, 10, 1)$
$177: P_{3061} = (4, 14, 10, 1)$
$178: P_{3077} = (4, 15, 10, 1)$
$179: P_{3081} = (8, 15, 10, 1)$
$180: P_{3089} = (0, 0, 11, 1)$
$181: P_{3115} = (10, 1, 11, 1)$
$182: P_{3116} = (11, 1, 11, 1)$
$183: P_{3122} = (1, 2, 11, 1)$
$184: P_{3130} = (9, 2, 11, 1)$
$185: P_{3146} = (9, 3, 11, 1)$
$186: P_{3152} = (15, 3, 11, 1)$
$187: P_{3219} = (2, 8, 11, 1)$
$188: P_{3222} = (5, 8, 11, 1)$
$189: P_{3234} = (1, 9, 11, 1)$
$190: P_{3235} = (2, 9, 11, 1)$
$191: P_{3259} = (10, 10, 11, 1)$
$192: P_{3270} = (5, 11, 11, 1)$
$193: P_{3280} = (15, 11, 11, 1)$
$194: P_{3355} = (10, 0, 12, 1)$
$195: P_{3377} = (0, 2, 12, 1)$
$196: P_{3382} = (5, 2, 12, 1)$
$197: P_{3399} = (6, 3, 12, 1)$
$198: P_{3407} = (14, 3, 12, 1)$
$199: P_{3426} = (1, 5, 12, 1)$
$200: P_{3435} = (10, 5, 12, 1)$
$201: P_{3442} = (1, 6, 12, 1)$
$202: P_{3447} = (6, 6, 12, 1)$
$203: P_{3459} = (2, 7, 12, 1)$
$204: P_{3472} = (15, 7, 12, 1)$
$205: P_{3501} = (12, 9, 12, 1)$
$206: P_{3503} = (14, 9, 12, 1)$
$207: P_{3555} = (2, 13, 12, 1)$
$208: P_{3574} = (5, 14, 12, 1)$
$209: P_{3584} = (15, 14, 12, 1)$
$210: P_{3611} = (10, 0, 13, 1)$
$211: P_{3637} = (4, 2, 13, 1)$
$212: P_{3646} = (13, 2, 13, 1)$
$213: P_{3670} = (5, 4, 13, 1)$
$214: P_{3680} = (15, 4, 13, 1)$
$215: P_{3702} = (5, 6, 13, 1)$
$216: P_{3706} = (9, 6, 13, 1)$
$217: P_{3714} = (1, 7, 13, 1)$
$218: P_{3720} = (7, 7, 13, 1)$
$219: P_{3733} = (4, 8, 13, 1)$
$220: P_{3736} = (7, 8, 13, 1)$
$221: P_{3745} = (0, 9, 13, 1)$
$222: P_{3760} = (15, 9, 13, 1)$
$223: P_{3802} = (9, 12, 13, 1)$
$224: P_{3842} = (1, 15, 13, 1)$
$225: P_{3851} = (10, 15, 13, 1)$
$226: P_{3863} = (6, 0, 14, 1)$
$227: P_{3905} = (0, 3, 14, 1)$
$228: P_{3920} = (15, 3, 14, 1)$
$229: P_{3926} = (5, 4, 14, 1)$
$230: P_{3935} = (14, 4, 14, 1)$
$231: P_{3945} = (8, 5, 14, 1)$
$232: P_{3952} = (15, 5, 14, 1)$
$233: P_{3973} = (4, 7, 14, 1)$
$234: P_{3976} = (7, 7, 14, 1)$
$235: P_{4038} = (5, 11, 14, 1)$
$236: P_{4041} = (8, 11, 14, 1)$
$237: P_{4085} = (4, 14, 14, 1)$
$238: P_{4087} = (6, 14, 14, 1)$
$239: P_{4104} = (7, 15, 14, 1)$
$240: P_{4119} = (6, 0, 15, 1)$
$241: P_{4137} = (8, 1, 15, 1)$
$242: P_{4138} = (9, 1, 15, 1)$
$243: P_{4148} = (3, 2, 15, 1)$

244 : $P_{4158} = (13, 2, 15, 1)$
245 : $P_{4246} = (5, 8, 15, 1)$
246 : $P_{4249} = (8, 8, 15, 1)$
247 : $P_{4260} = (3, 9, 15, 1)$
248 : $P_{4268} = (11, 9, 15, 1)$
249 : $P_{4300} = (11, 11, 15, 1)$
250 : $P_{4304} = (15, 11, 15, 1)$
251 : $P_{4305} = (0, 12, 15, 1)$
252 : $P_{4314} = (9, 12, 15, 1)$
253 : $P_{4327} = (6, 13, 15, 1)$
254 : $P_{4334} = (13, 13, 15, 1)$
255 : $P_{4342} = (5, 14, 15, 1)$

Line Intersection Graph

	0
0	0

Neighbor sets in the line intersection graph:
Line 0 intersects

Line
in point

The surface has 273 points:
The points on the surface are:

0 : $P_{0} = (1, 0, 0, 0)$
1 : $P_{1} = (0, 1, 0, 0)$
2 : $P_{20} = (1, 0, 1, 0)$
3 : $P_{35} = (0, 1, 1, 0)$
4 : $P_{119} = (4, 6, 1, 0)$
5 : $P_{126} = (11, 6, 1, 0)$
6 : $P_{142} = (11, 7, 1, 0)$
7 : $P_{145} = (14, 7, 1, 0)$
8 : $P_{181} = (2, 10, 1, 0)$
9 : $P_{188} = (9, 10, 1, 0)$
10 : $P_{199} = (4, 11, 1, 0)$
11 : $P_{209} = (14, 11, 1, 0)$
12 : $P_{213} = (2, 12, 1, 0)$
13 : $P_{221} = (10, 12, 1, 0)$
14 : $P_{236} = (9, 13, 1, 0)$
15 : $P_{237} = (10, 13, 1, 0)$
16 : $P_{275} = (1, 0, 0, 1)$
17 : $P_{311} = (5, 2, 0, 1)$
18 : $P_{329} = (7, 3, 0, 1)$
19 : $P_{346} = (8, 4, 0, 1)$
20 : $P_{366} = (12, 5, 0, 1)$
21 : $P_{379} = (9, 6, 0, 1)$
22 : $P_{388} = (2, 7, 0, 1)$
23 : $P_{408} = (6, 8, 0, 1)$
24 : $P_{433} = (15, 9, 0, 1)$
25 : $P_{445} = (11, 10, 0, 1)$
26 : $P_{460} = (10, 11, 0, 1)$
27 : $P_{470} = (4, 12, 0, 1)$
28 : $P_{496} = (14, 13, 0, 1)$
29 : $P_{501} = (3, 14, 0, 1)$
30 : $P_{527} = (13, 15, 0, 1)$
31 : $P_{530} = (0, 0, 1, 1)$
32 : $P_{531} = (1, 0, 1, 1)$
33 : $P_{532} = (2, 0, 1, 1)$
34 : $P_{533} = (3, 0, 1, 1)$
35 : $P_{534} = (4, 0, 1, 1)$
36 : $P_{535} = (5, 0, 1, 1)$
37 : $P_{536} = (6, 0, 1, 1)$
38 : $P_{537} = (7, 0, 1, 1)$
39 : $P_{538} = (8, 0, 1, 1)$
40 : $P_{539} = (9, 0, 1, 1)$
41 : $P_{540} = (10, 0, 1, 1)$
42 : $P_{541} = (11, 0, 1, 1)$
43 : $P_{542} = (12, 0, 1, 1)$
44 : $P_{543} = (13, 0, 1, 1)$
45 : $P_{544} = (14, 0, 1, 1)$
46 : $P_{545} = (15, 0, 1, 1)$
47 : $P_{555} = (10, 1, 1, 1)$
48 : $P_{556} = (11, 1, 1, 1)$
49 : $P_{627} = (2, 6, 1, 1)$
50 : $P_{628} = (3, 6, 1, 1)$
51 : $P_{649} = (8, 7, 1, 1)$
52 : $P_{650} = (9, 7, 1, 1)$
53 : $P_{701} = (12, 10, 1, 1)$
54 : $P_{702} = (13, 10, 1, 1)$
55 : $P_{711} = (6, 11, 1, 1)$
56 : $P_{712} = (7, 11, 1, 1)$
57 : $P_{735} = (14, 12, 1, 1)$
58 : $P_{736} = (15, 12, 1, 1)$
59 : $P_{741} = (4, 13, 1, 1)$
60 : $P_{742} = (5, 13, 1, 1)$
61 : $P_{798} = (13, 0, 2, 1)$
62 : $P_{826} = (9, 2, 2, 1)$
63 : $P_{830} = (13, 2, 2, 1)$
64 : $P_{845} = (12, 3, 2, 1)$
65 : $P_{865} = (0, 5, 2, 1)$
66 : $P_{868} = (3, 5, 2, 1)$
67 : $P_{916} = (3, 8, 2, 1)$
68 : $P_{928} = (15, 8, 2, 1)$
69 : $P_{931} = (2, 9, 2, 1)$
70 : $P_{937} = (8, 9, 2, 1)$
71 : $P_{953} = (8, 10, 2, 1)$
72 : $P_{960} = (15, 10, 2, 1)$
73 : $P_{986} = (9, 12, 2, 1)$
74 : $P_{989} = (12, 12, 2, 1)$
75 : $P_{1054} = (13, 0, 3, 1)$
76 : $P_{1071} = (14, 1, 3, 1)$
77 : $P_{1072} = (15, 1, 3, 1)$
78 : $P_{1081} = (8, 2, 3, 1)$
79 : $P_{1110} = (5, 4, 3, 1)$
80 : $P_{1112} = (7, 4, 3, 1)$
81 : $P_{1137} = (0, 6, 3, 1)$
82 : $P_{1151} = (14, 6, 3, 1)$
83 : $P_{1160} = (7, 7, 3, 1)$
84 : $P_{1166} = (13, 7, 3, 1)$
85 : $P_{1204} = (3, 10, 3, 1)$
86 : $P_{1211} = (10, 10, 3, 1)$
87 : $P_{1270} = (5, 14, 3, 1)$
88 : $P_{1275} = (10, 14, 3, 1)$
89 : $P_{1289} = (8, 15, 3, 1)$
90 : $P_{1296} = (15, 15, 3, 1)$
91 : $P_{1304} = (7, 0, 4, 1)$
92 : $P_{1368} = (7, 4, 4, 1)$
93 : $P_{1375} = (14, 4, 4, 1)$
94 : $P_{1383} = (6, 5, 4, 1)$
95 : $P_{1399} = (6, 6, 4, 1)$
96 : $P_{1407} = (14, 6, 4, 1)$
97 : $P_{1425} = (0, 8, 4, 1)$
98 : $P_{1430} = (5, 8, 4, 1)$

$99: P_{1476} = (3, 11, 4, 1)$
$100: P_{1488} = (15, 11, 4, 1)$
$101: P_{1525} = (4, 14, 4, 1)$
$102: P_{1536} = (15, 14, 4, 1)$
$103: P_{1540} = (3, 15, 4, 1)$
$104: P_{1542} = (5, 15, 4, 1)$
$105: P_{1560} = (7, 0, 5, 1)$
$106: P_{1571} = (2, 1, 5, 1)$
$107: P_{1572} = (3, 1, 5, 1)$
$108: P_{1593} = (8, 2, 5, 1)$
$109: P_{1596} = (11, 2, 5, 1)$
$110: P_{1604} = (3, 3, 5, 1)$
$111: P_{1616} = (15, 3, 5, 1)$
$112: P_{1632} = (15, 4, 5, 1)$
$113: P_{1705} = (8, 9, 5, 1)$
$114: P_{1709} = (12, 9, 5, 1)$
$115: P_{1734} = (5, 11, 5, 1)$
$116: P_{1740} = (11, 11, 5, 1)$
$117: P_{1752} = (7, 12, 5, 1)$
$118: P_{1757} = (12, 12, 5, 1)$
$119: P_{1761} = (0, 13, 5, 1)$
$120: P_{1763} = (2, 13, 5, 1)$
$121: P_{1820} = (11, 0, 6, 1)$
$122: P_{1844} = (3, 2, 6, 1)$
$123: P_{1849} = (8, 2, 6, 1)$
$124: P_{1873} = (0, 4, 6, 1)$
$125: P_{1881} = (8, 4, 6, 1)$
$126: P_{1891} = (2, 5, 6, 1)$
$127: P_{1902} = (13, 5, 6, 1)$
$128: P_{1925} = (4, 7, 6, 1)$
$129: P_{1938} = (1, 8, 6, 1)$
$130: P_{1948} = (11, 8, 6, 1)$
$131: P_{2004} = (3, 12, 6, 1)$
$132: P_{2005} = (4, 12, 6, 1)$
$133: P_{2018} = (1, 13, 6, 1)$
$134: P_{2030} = (13, 13, 6, 1)$
$135: P_{2035} = (2, 14, 6, 1)$
$136: P_{2039} = (6, 14, 6, 1)$
$137: P_{2076} = (11, 0, 7, 1)$
$138: P_{2114} = (1, 3, 7, 1)$
$139: P_{2124} = (11, 3, 7, 1)$
$140: P_{2136} = (7, 4, 7, 1)$
$141: P_{2138} = (9, 4, 7, 1)$
$142: P_{2175} = (14, 6, 7, 1)$
$143: P_{2212} = (3, 9, 7, 1)$
$144: P_{2217} = (8, 9, 7, 1)$
$145: P_{2258} = (1, 12, 7, 1)$
$146: P_{2269} = (12, 12, 7, 1)$
$147: P_{2281} = (8, 13, 7, 1)$
$148: P_{2287} = (14, 13, 7, 1)$
$149: P_{2289} = (0, 14, 7, 1)$
$150: P_{2292} = (3, 14, 7, 1)$
$151: P_{2314} = (9, 15, 7, 1)$
$152: P_{2317} = (12, 15, 7, 1)$
$153: P_{2333} = (12, 0, 8, 1)$
$154: P_{2341} = (4, 1, 8, 1)$
$155: P_{2342} = (5, 1, 8, 1)$
$156: P_{2395} = (10, 4, 8, 1)$
$157: P_{2400} = (15, 4, 8, 1)$
$158: P_{2404} = (3, 5, 8, 1)$
$159: P_{2406} = (5, 5, 8, 1)$
$160: P_{2423} = (6, 6, 8, 1)$
$161: P_{2429} = (12, 6, 8, 1)$
$162: P_{2433} = (0, 7, 8, 1)$
$163: P_{2437} = (4, 7, 8, 1)$
$164: P_{2468} = (3, 9, 8, 1)$
$165: P_{2489} = (8, 10, 8, 1)$
$166: P_{2491} = (10, 10, 8, 1)$
$167: P_{2551} = (6, 14, 8, 1)$
$168: P_{2560} = (15, 14, 8, 1)$
$169: P_{2589} = (12, 0, 9, 1)$
$170: P_{2612} = (3, 2, 9, 1)$
$171: P_{2618} = (9, 2, 9, 1)$
$172: P_{2630} = (5, 3, 9, 1)$
$173: P_{2633} = (8, 3, 9, 1)$
$174: P_{2718} = (13, 8, 9, 1)$
$175: P_{2723} = (2, 9, 9, 1)$
$176: P_{2733} = (12, 9, 9, 1)$
$177: P_{2740} = (3, 10, 9, 1)$
$178: P_{2742} = (5, 10, 9, 1)$
$179: P_{2787} = (2, 13, 9, 1)$
$180: P_{2798} = (13, 13, 9, 1)$
$181: P_{2817} = (0, 15, 9, 1)$
$182: P_{2825} = (8, 15, 9, 1)$
$183: P_{2833} = (0, 0, 10, 1)$
$184: P_{2859} = (10, 1, 10, 1)$
$185: P_{2860} = (11, 1, 10, 1)$
$186: P_{2898} = (1, 4, 10, 1)$
$187: P_{2911} = (14, 4, 10, 1)$
$188: P_{2916} = (3, 5, 10, 1)$
$189: P_{2927} = (14, 5, 10, 1)$
$190: P_{2996} = (3, 10, 10, 1)$
$191: P_{3001} = (8, 10, 10, 1)$
$192: P_{3020} = (11, 11, 10, 1)$
$193: P_{3058} = (1, 14, 10, 1)$
$194: P_{3061} = (4, 14, 10, 1)$
$195: P_{3077} = (4, 15, 10, 1)$
$196: P_{3081} = (8, 15, 10, 1)$
$197: P_{3089} = (0, 0, 11, 1)$
$198: P_{3115} = (10, 1, 11, 1)$
$199: P_{3116} = (11, 1, 11, 1)$
$200: P_{3122} = (1, 2, 11, 1)$
$201: P_{3130} = (9, 2, 11, 1)$
$202: P_{3146} = (9, 3, 11, 1)$
$203: P_{3152} = (15, 3, 11, 1)$
$204: P_{3219} = (2, 8, 11, 1)$
$205: P_{3222} = (5, 8, 11, 1)$
$206: P_{3234} = (1, 9, 11, 1)$
$207: P_{3235} = (2, 9, 11, 1)$
$208: P_{3259} = (10, 10, 11, 1)$
$209: P_{3270} = (5, 11, 11, 1)$
$210: P_{3280} = (15, 11, 11, 1)$
$211: P_{3355} = (10, 0, 12, 1)$
$212: P_{3377} = (0, 2, 12, 1)$
$213: P_{3382} = (5, 2, 12, 1)$
$214: P_{3399} = (6, 3, 12, 1)$
$215: P_{3407} = (14, 3, 12, 1)$
$216: P_{3426} = (1, 5, 12, 1)$
$217: P_{3435} = (10, 5, 12, 1)$
$218: P_{3442} = (1, 6, 12, 1)$
$219: P_{3447} = (6, 6, 12, 1)$
$220: P_{3459} = (2, 7, 12, 1)$
$221: P_{3472} = (15, 7, 12, 1)$
$222: P_{3501} = (12, 9, 12, 1)$
$223: P_{3503} = (14, 9, 12, 1)$
$224: P_{3555} = (2, 13, 12, 1)$
$225: P_{3574} = (5, 14, 12, 1)$
$226: P_{3584} = (15, 14, 12, 1)$
$227: P_{3611} = (10, 0, 13, 1)$
$228: P_{3637} = (4, 2, 13, 1)$
$229: P_{3646} = (13, 2, 13, 1)$
$230: P_{3670} = (5, 4, 13, 1)$
$231: P_{3680} = (15, 4, 13, 1)$
$232: P_{3702} = (5, 6, 13, 1)$
$233: P_{3706} = (9, 6, 13, 1)$
$234: P_{3714} = (1, 7, 13, 1)$
$235: P_{3720} = (7, 7, 13, 1)$
$236: P_{3733} = (4, 8, 13, 1)$
$237: P_{3736} = (7, 8, 13, 1)$
$238: P_{3745} = (0, 9, 13, 1)$
$239: P_{3760} = (15, 9, 13, 1)$
$240: P_{3802} = (9, 12, 13, 1)$
$241: P_{3842} = (1, 15, 13, 1)$
$242: P_{3851} = (10, 15, 13, 1)$
$243: P_{3863} = (6, 0, 14, 1)$
$244: P_{3905} = (0, 3, 14, 1)$
$245: P_{3920} = (15, 3, 14, 1)$
$246: P_{3926} = (5, 4, 14, 1)$
$247: P_{3935} = (14, 4, 14, 1)$
$248: P_{3945} = (8, 5, 14, 1)$
$249: P_{3952} = (15, 5, 14, 1)$
$250: P_{3973} = (4, 7, 14, 1)$
$251: P_{3976} = (7, 7, 14, 1)$
$252: P_{4038} = (5, 11, 14, 1)$
$253: P_{4041} = (8, 11, 14, 1)$
$254: P_{4085} = (4, 14, 14, 1)$
$255: P_{4087} = (6, 14, 14, 1)$
$256: P_{4104} = (7, 15, 14, 1)$
$257: P_{4119} = (6, 0, 15, 1)$
$258: P_{4137} = (8, 1, 15, 1)$
$259: P_{4138} = (9, 1, 15, 1)$
$260: P_{4148} = (3, 2, 15, 1)$

261 : $P_{4158} = (13, 2, 15, 1)$
262 : $P_{4246} = (5, 8, 15, 1)$
263 : $P_{4249} = (8, 8, 15, 1)$
264 : $P_{4260} = (3, 9, 15, 1)$
265 : $P_{4268} = (11, 9, 15, 1)$
266 : $P_{4300} = (11, 11, 15, 1)$
267 : $P_{4304} = (15, 11, 15, 1)$
268 : $P_{4305} = (0, 12, 15, 1)$
269 : $P_{4314} = (9, 12, 15, 1)$
270 : $P_{4327} = (6, 13, 15, 1)$
271 : $P_{4334} = (13, 13, 15, 1)$
272 : $P_{4342} = (5, 14, 15, 1)$