

$L_3(4).2_1 \pmod{2}$

	blocks	defect	matrix
$4_1.G :$	1 2	9 3	25×3 5×1
$12_1.G :$	3 $4 = 3 * 5$	9	25×3
$4_2.G :$	1 2	9 3	26×3 5×1
$12_2.G :$	3 $4 = 3 * 5$	9	26×3

Block 1:	$\varphi_{1,0}$	φ_{2+}	φ_{4+}	
$1_1 = \chi_{1,0}$	1	.	.	
$1_2 = \chi_{1,1}$	1	.	.	
$20_1 = \chi_{2,0}$	2	.	1	
$20_2 = \chi_{2,1}$	2	.	1	
$35_1 = \chi_{3,0}$	1	1	1	
$35_2 = \chi_{3,1}$	1	1	1	
$35_3 = \chi_{4,0}$	1	1	1	
$35_4 = \chi_{4,1}$	1	1	1	
$35_5 = \chi_{5,0}$	1	1	1	
$35_6 = \chi_{5,1}$	1	1	1	
$90_1 = \chi_{6+}$	4	2	3	
$126_1 = \chi_{8+}$	6	3	4	
$20_3 = \chi_{11+}$	2	.	1	$\varphi_{1,0} = 1_1$
$56_1 = \chi_{13+}$	4	1	2	$\varphi_{2+} = 16_1$
$36_1 = \chi_{15,0}$	2	1	1	$\varphi_{4+} = 18_1$
$36_2 = \chi_{15,1}$	2	1	1	
$70_1 = \chi_{17,0}$	2	2	2	
$70_2 = \chi_{17,1}$	2	2	2	
$90_2 = \chi_{18,0}$	4	2	3	
$90_3 = \chi_{18,1}$	4	2	3	
$16_1 = \chi_{19+}$	.	1	.	
$16_2 = \chi_{20+}$	.	1	.	
$112_1 = \chi_{21+}$	8	2	4	
$160_1 = \chi_{23+}$	6	4	5	
$160_2 = \chi_{24+}$	6	4	5	

Block 2:	$\varphi_{6,0}$
$64_1 = \chi_{10,0}$	1
$64_2 = \chi_{10,1}$	1
$64_3 = \chi_{16,0}$	1
$64_4 = \chi_{16,1}$	1
$128_1 = \chi_{22+}$	2

$$\varphi_{6,0} = 64_1$$

Block 3:	φ_{7+}	$\varphi_{9,0}$	φ_{10+}
$15_1 = \chi_{32,0}$	1	1	.
$15_2 = \chi_{32,1}$	1	1	.
$15_5 = \chi_{33,0}$	1	1	.
$15_6 = \chi_{33,1}$	1	1	.
$15_9 = \chi_{34,0}$	1	1	.
$15_{10} = \chi_{34,1}$	1	1	.
$21_1 = \chi_{35,0}$	2	1	.
$21_2 = \chi_{35,1}$	2	1	.
$90_4 = \chi_{36+}$	4	2	1
$126_2 = \chi_{38+}$	7	4	1
$84_1 = \chi_{40,0}$	3	2	1
$84_2 = \chi_{40,1}$	3	2	1
$6_1 = \chi_{41,0}$	1	.	.
$6_2 = \chi_{41,1}$	1	.	.
$36_3 = \chi_{42,0}$	3	2	.
$36_4 = \chi_{42,1}$	3	2	.
$84_5 = \chi_{43+}$	3	2	1
$120_1 = \chi_{45+}$	6	4	1
$90_6 = \chi_{47,0}$	4	2	1
$90_7 = \chi_{47,1}$	4	2	1
$48_1 = \chi_{48+}$	.	.	1
$48_3 = \chi_{49+}$	.	.	1
$96_1 = \chi_{50+}$	5	2	1
$96_3 = \chi_{51+}$	5	2	1
$240_1 = \chi_{52+}$	12	8	2

$$\begin{aligned}\varphi_{7+} &= 6_1 \\ \varphi_{9,0} &= 9_1 \\ \varphi_{10+} &= 48_1\end{aligned}$$

Block 1:	$\varphi_{1,0}$	φ_{2+}	φ_{4+}	
$1_1 = \chi_{1,0}$	1	.	.	
$1_2 = \chi_{1,1}$	1	.	.	
$20_1 = \chi_{2,0}$	2	.	1	
$20_2 = \chi_{2,1}$	2	.	1	
$35_1 = \chi_{3,0}$	1	1	1	
$35_2 = \chi_{3,1}$	1	1	1	
$35_3 = \chi_{4,0}$	1	1	1	
$35_4 = \chi_{4,1}$	1	1	1	
$35_5 = \chi_{5,0}$	1	1	1	
$35_6 = \chi_{5,1}$	1	1	1	
$90_1 = \chi_{6+}$	4	2	3	
$126_1 = \chi_{8+}$	6	3	4	
$20_3 = \chi_{11+}$	2	.	1	$\varphi_{1,0} = 1_1$
$56_1 = \chi_{13+}$	4	1	2	$\varphi_{2+} = 16_1$
$36_1 = \chi_{15,0}$	2	1	1	$\varphi_{4+} = 18_1$
$36_2 = \chi_{15,1}$	2	1	1	
$70_1 = \chi_{17,0}$	2	2	2	
$70_2 = \chi_{17,1}$	2	2	2	
$90_2 = \chi_{18,0}$	4	2	3	
$90_3 = \chi_{18,1}$	4	2	3	
$40_1 = \chi_{25+}$	4	.	2	
$56_2 = \chi_{26+}$	4	1	2	
$56_3 = \chi_{27+}$	4	1	2	
$72_1 = \chi_{28+}$	4	2	2	
$160_1 = \chi_{30+}$	6	4	5	
$160_2 = \chi_{31+}$	6	4	5	

Block 2:	$\varphi_{6,0}$	
$64_1 = \chi_{10,0}$	1	
$64_2 = \chi_{10,1}$	1	
$64_3 = \chi_{16,0}$	1	
$64_4 = \chi_{16,1}$	1	
$128_1 = \chi_{29+}$	2	

$\varphi_{6,0} = 64_1$

Block 3:	φ_{7+}	$\varphi_{9,0}$	φ_{10+}
$15_1 = \chi_{32,0}$	1	1	.
$15_2 = \chi_{32,1}$	1	1	.
$15_5 = \chi_{33,0}$	1	1	.
$15_6 = \chi_{33,1}$	1	1	.
$15_9 = \chi_{34,0}$	1	1	.
$15_{10} = \chi_{34,1}$	1	1	.
$21_1 = \chi_{35,0}$	2	1	.
$21_2 = \chi_{35,1}$	2	1	.
$90_4 = \chi_{36+}$	4	2	1
$126_2 = \chi_{38+}$	7	4	1
$84_1 = \chi_{40,0}$	3	2	1
$84_2 = \chi_{40,1}$	3	2	1
$6_1 = \chi_{41,0}$	1	.	.
$6_2 = \chi_{41,1}$	1	.	.
$36_3 = \chi_{42,0}$	3	2	.
$36_4 = \chi_{42,1}$	3	2	.
$84_5 = \chi_{43+}$	3	2	1
$120_1 = \chi_{45+}$	6	4	1
$90_6 = \chi_{47,0}$	4	2	1
$90_7 = \chi_{47,1}$	4	2	1
$72_2 = \chi_{53+}$	6	4	.
$96_1 = \chi_{54+}$	5	2	1
$96_3 = \chi_{55+}$	5	2	1
$120_3 = \chi_{56+}$	6	4	1
$120_5 = \chi_{57+}$	6	4	1
$168_1 = \chi_{58+}$	6	4	2

$$\begin{aligned}
\varphi_{7+} &= 6_1 \\
\varphi_{9,0} &= 9_1 \\
\varphi_{10+} &= 48_1
\end{aligned}$$