S_{12} (mod 2)

	blocks	defect	matrix
$2.G:$	1	11	81×11
	2	5	15×3
	3	2	4×1

Block 1:	$\varphi_{1,0}$	$\varphi_{2,0}$	φ_{3+}	$\varphi_{5,0}$	$\varphi_{6,0}$	φ_{7+}	$\varphi_{9,0}$	$\varphi_{11,0}$	$\varphi_{12,0}$	$\varphi_{13,0}$	φ_{14+}
$1_1 = \chi_{1,0}$	1	.	.	.	.	.	.	.	.	.	.
$1_2 = \chi_{1,1}$	1	.	.	.	.	.	.	.	.	.	.
$11_1 = \chi_{2,0}$	1	1	.	.	.	.	.	.	.	.	.
$11_2 = \chi_{2,1}$	1	1	.	.	.	.	.	.	.	.	.
$54_1 = \chi_{3,0}$	.	1	.	1	.	.	.	.	.	.	.
$54_2 = \chi_{3,1}$	.	1	.	1	.	.	.	.	.	.	.
$55_1 = \chi_{4,0}$	1	1	.	1	.	.	.	.	.	.	.
$55_2 = \chi_{4,1}$	1	1	.	1	.	.	.	.	.	.	.
$132_1 = \chi_{5,0}$	.	.	1	.	1	.	.	.	.	.	.
$132_2 = \chi_{5,1}$	.	.	1	.	1	.	.	.	.	.	.
$154_1 = \chi_{6,0}$	.	1	.	1	1	.	.	.	.	.	.
$154_2 = \chi_{6,1}$	.	1	.	1	1	.	.	.	.	.	.
$165_1 = \chi_{7,0}$	1	2	.	1	1	.	.	.	.	.	.
$165_2 = \chi_{7,1}$	1	2	.	1	1	.	.	.	.	.	.
$275_1 = \chi_{8,0}$	1	1	.	.	1	.	1	.	.	.	.
$275_2 = \chi_{8,1}$	1	1	.	.	1	.	1	.	.	.	.
$297_1 = \chi_{9,0}$	1	.	1	.	1	.	1	.	.	.	.
$297_2 = \chi_{9,1}$	1	.	1	.	1	.	1	.	.	.	.
$330_1 = \chi_{11,0}$	2	2	.	1	1	.	1	.	.	.	.
$330_2 = \chi_{11,1}$	2	2	.	1	1	.	1	.	.	.	.
$462_1 = \chi_{12,0}$	2	2	1	1	2	.	1	.	.	.	.
$462_2 = \chi_{12,1}$	2	2	1	1	2	.	1	.	.	.	.
$462_3 = \chi_{13,0}$	2	.	.	1	.	.	.	1	.	.	.
$462_4 = \chi_{13,1}$	2	.	.	1	.	.	.	1	.	.	.
$616_1 = \chi_{14,0}$	2	.	.	1	.	.	.	.	1	.	.
$616_2 = \chi_{14,1}$	2	.	.	1	.	.	.	.	1	.	.
$891_1 = \chi_{15,0}$	3	1	.	1	1	.	1	.	1	.	.
$891_2 = \chi_{15,1}$	3	1	.	1	1	.	1	.	1	.	.
$945_1 = \chi_{16,0}$	3	2	.	2	1	.	1	.	1	.	.
$945_2 = \chi_{16,1}$	3	2	.	2	1	.	1	.	1	.	.
$2100_1 = \chi_{17+}$	4	2	1	2	2	1	2	.	2	.	.
$1155_1 = \chi_{19,0}$	1	.	1	.	1	1	1	.	1	.	.
$1155_2 = \chi_{19,1}$	1	.	1	.	1	1	1	.	1	.	.
$1320_1 = \chi_{20,0}$	2	.	.	1	.	1	.	1	1	.	.
$1320_2 = \chi_{20,1}$	2	.	.	1	.	1	.	1	1	.	.
$2640_1 = \chi_{21+}$	.	4	1	.	2	.	.	.	.	.	1
$1485_1 = \chi_{24,0}$	3	.	.	1	.	1	1	1	1	.	.
$1485_2 = \chi_{24,1}$	3	.	.	1	.	1	1	1	1	.	.
$1650_1 = \chi_{25,0}$	2	1	1	1	1	.	.	1	.	1	.
$1650_2 = \chi_{25,1}$	2	1	1	1	1	.	.	1	.	1	.

(**Block 1:**)	$\varphi_{1,0}$	$\varphi_{2,0}$	φ_{3+}	$\varphi_{5,0}$	$\varphi_{6,0}$	φ_{7+}	$\varphi_{9,0}$	$\varphi_{11,0}$	$\varphi_{12,0}$	$\varphi_{13,0}$	φ_{14+}
$1925_1 = \chi_{27,0}$	3	1	1	.	1	.	1	.	1	1	.
$1925_2 = \chi_{27,1}$	3	1	1	.	1	.	1	.	1	1	.
$1925_3 = \chi_{28,0}$	3	2	1	1	2	.	1	1	.	1	.
$1925_4 = \chi_{28,1}$	3	2	1	1	2	.	1	1	.	1	.
$2079_1 = \chi_{29,0}$	3	2	1	1	2	.	1	.	1	1	.
$2079_2 = \chi_{29,1}$	3	2	1	1	2	.	1	.	1	1	.
$2376_1 = \chi_{31,0}$	4	2	2	1	3	.	2	.	1	1	.
$2376_2 = \chi_{31,1}$	4	2	2	1	3	.	2	.	1	1	.
$2673_1 = \chi_{32,0}$	3	1	1	1	1	1	1	1	1	1	.
$2673_2 = \chi_{32,1}$	3	1	1	1	1	1	1	1	1	1	.
$2970_1 = \chi_{33,0}$	2	4	.	1	1	.	.	1	.	.	1
$2970_2 = \chi_{33,1}$	2	4	.	1	1	.	.	1	.	.	1
$3080_1 = \chi_{34,0}$	4	2	2	1	3	1	2	1	1	1	.
$3080_2 = \chi_{34,1}$	4	2	2	1	3	1	2	1	1	1	.
$3564_1 = \chi_{36,0}$	6	2	1	2	2	1	2	1	2	1	.
$3564_2 = \chi_{36,1}$	6	2	1	2	2	1	2	1	2	1	.
$3696_1 = \chi_{37,0}$	6	2	2	2	3	1	2	1	2	1	.
$3696_2 = \chi_{37,1}$	6	2	2	2	3	1	2	1	2	1	.
$7700_1 = \chi_{38+}$	8	6	3	2	4	1	2	2	2	2	1
$4158_1 = \chi_{40,0}$	2	5	1	1	2	.	.	1	.	1	1
$4158_2 = \chi_{40,1}$	2	5	1	1	2	.	.	1	.	1	1
$4455_1 = \chi_{41,0}$	3	5	2	1	3	.	1	1	.	1	1
$4455_2 = \chi_{41,1}$	3	5	2	1	3	.	1	1	.	1	1
$5775_1 = \chi_{43,0}$	5	5	2	2	3	1	1	2	1	1	1
$5775_2 = \chi_{43,1}$	5	5	2	2	3	1	1	2	1	1	1
$32_1 = \chi_{44,0}$	.	.	1	.	.	.	.	.	.	.	.
$32_2 = \chi_{44,1}$	.	.	1	.	.	.	.	.	.	.	.
$320_3 = \chi_{45+}$	.	.	1	.	.	1	.	.	.	.	.
$1408_3 = \chi_{47+}$	.	.	.	.	.	2	.	2	.	.	.
$1760_1 = \chi_{51,0}$	4	.	.	.	.	1	2	.	2	.	.
$1760_2 = \chi_{51,1}$	4	.	.	.	.	1	2	.	2	.	.
$3520_3 = \chi_{52+}$	.	.	1	.	.	1	.	2	.	.	1
$3520_4 = \chi_{54+}$	4	4	4	.	6	.	4	.	.	2	.
$4224_1 = \chi_{57+}$	8	8	1	4	4	.	2	2	.	.	1
$5280_1 = \chi_{59+}$	.	8	2	.	4	.	.	.	.	.	2
$5600_1 = \chi_{62,0}$	4	4	2	.	2	.	.	2	.	2	1
$5600_2 = \chi_{62,1}$	4	4	2	.	2	.	.	2	.	2	1
$7392_1 = \chi_{64,0}$	12	4	4	4	6	2	4	2	4	2	.
$7392_2 = \chi_{64,1}$	12	4	4	4	6	2	4	2	4	2	.
$7776_1 = \chi_{65,0}$	8	8	2	4	4	1	2	2	2	2	1

(**Block 1:**)	$\varphi_{1,0}$	$\varphi_{2,0}$	φ_{3+}	$\varphi_{5,0}$	$\varphi_{6,0}$	φ_{7+}	$\varphi_{9,0}$	$\varphi_{11,0}$	$\varphi_{12,0}$	$\varphi_{13,0}$	φ_{14+}
$7776_2 = \chi_{65,1}$	8	8	2	4	4	1	2	2	2	2	1

$$\begin{aligned}\varphi_{1,0} &= 1_1\\ \varphi_{2,0} &= 10_1\\ \varphi_{3+} &= 32_1\\ \varphi_{5,0} &= 44_1\\ \varphi_{6,0} &= 100_1\\ \varphi_{7+} &= 288_1\end{aligned}$$

$$\begin{aligned}\varphi_{9,0} &= 164_1\\ \varphi_{11,0} &= 416_1\\ \varphi_{12,0} &= 570_1\\ \varphi_{13,0} &= 1046_1\\ \varphi_{14+} &= 2368_1\end{aligned}$$

Block 2:	$\varphi_{10,0}$	$\varphi_{16,0}$	$\varphi_{17,0}$
$320_1 = \chi_{10,0}$	1	.	.
$320_2 = \chi_{10,1}$	1	.	.
$1408_1 = \chi_{23,0}$	.	1	.
$1408_2 = \chi_{23,1}$	.	1	.
$1728_1 = \chi_{26,0}$	1	1	.
$1728_2 = \chi_{26,1}$	1	1	.
$2112_1 = \chi_{30,0}$	1	.	1
$2112_2 = \chi_{30,1}$	1	.	1
$3520_1 = \chi_{35,0}$	1	1	1
$3520_2 = \chi_{35,1}$	1	1	1
$2816_1 = \chi_{49+}$	.	2	.
$1792_1 = \chi_{56,0}$	.	.	1
$1792_2 = \chi_{56,1}$	.	.	1
$3840_1 = \chi_{61,0}$	2	1	1
$3840_2 = \chi_{61,1}$	2	1	1

$$\begin{aligned}\varphi_{10,0} &= 320_1\\ \varphi_{16,0} &= 1408_1\\ \varphi_{17,0} &= 1792_1\end{aligned}$$

Block 3:	$\varphi_{18,0}$
$5632_1 = \chi_{42,0}$	1
$5632_2 = \chi_{42,1}$	1
$5632_3 = \chi_{63,0}$	1
$5632_4 = \chi_{63,1}$	1

$$\varphi_{18,0} = 5632_1$$