

SWITCHING SYSTEMS MANAGEMENT
NO. 3 ELECTRONIC SWITCHING SYSTEM
ASSIGNMENT ADMINISTRATION
NEW OFFICES

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SECTION 11o(2)

1. GENERAL

1.01 This section describes procedures for the assignment of lines, trunks, and service circuits in a new No. 3 Electronic Switching System (ESS) office.

1.02 Whenever this section is reissued, the reason for reissue will be listed in this paragraph.

1.03 This section supplements Dial Facilities Management Practice (DFMP) Division H, Section 11o(1), General Assignment Recommendations. It is recommended that the network administrator have a thorough understanding of Section 11o(1), as a prerequisite to this section.

1.04 This section describes the roll of the network administrator in the review of the network design order, the preparation of office data assembler (ODA) information, the use of the preferential number assignment list (PNAL), and the cutover committee.

2. NETWORK DESIGN ORDER

2.01 The network design order is prepared by the network design engineer and specifies quantities of traffic-dependent items to be provided in the No. 3 ESS office. The network design engineer uses worksheets provided in Traffic Facilities Practice Division D, Section 13b, Network Design Order Preparation, for his calculations.

2.02 If the network design engineer uses data from a non-ESS community dial office for computations, the data should be converted to data applicable to an ESS by use of data conversion worksheets discussed in Traffic Facilities Practice Division D, Section 13b(3), Engineering of Initial Offices.

2.03 The network administrator should concur with the network design engineer on the data used for computations *before* preparation of the network design order is begun. The network administrator should also review the network design order upon its completion. The quantities of different common equipment specified should be checked for reasonableness.

3. OFFICE DATA ASSEMBLER

3.01 The ODA is a system of general-purpose computer programs used by Western Electric to assemble the translation data unique to each No. 3 ESS office. Keypunch forms are completed for the No. 3 ESS office containing information on lines, trunks, service circuits, routing, charging, and measurements. Data from the forms are used by the ODA to produce a magnetic tape record of the translations area of memory for the office. Western Electric installs the translations data from the magnetic tape record in the No. 3 ESS office prior to shipping the office to the telephone company. Office translations are used for testing the office prior to ship.

3.02 The No. 3 ESS Translation Guide, TG-3, is the handbook for preparing ODA translation forms. The TG-3 contains all necessary ODA forms and detailed information on completing each form. The TG-3 also serves as a guide to office translations.

3.03 Assignment information which must be supplied by the network administrator and the translation forms on which the information is entered are given in DFMP Division H, Section 11o(1), General Assignment Recommendations.

3.04 For more information on ODA scheduling and requirements, see TG-3 Division 3.

4. PREFERENTIAL NUMBER ASSIGNMENT LIST

4.01 The PNAL is a list of the office equipment numbers (OEs) in a No. 3 ESS office. The OEs are arranged in the order in which they should be selected for assignments. The purpose of the PNAL is to provide a means by which lines, trunks, and service circuits can be assigned across the network of a new No. 3 ESS office such that good load balance is produced.

4.02 *The PNAL is designed to be used to make only initial assignments in a No. 3 ESS.* The PNAL is not to be used in day-to-day assignments in a working office. For this purpose, the available numbers listed on the mechanized office records should be used. See DFMP Division H, Section 11o(5), Office Record System.

4.03 Paragraphs 4.04 through 4.27 list the restrictions which must be followed in using

the PNAL, the technique in using the list, and the algorithm by which the list is produced.

RESTRICTIONS

A. Ground Start

4.04 Three-sixteenths of the network can be converted from loop start to ground start. Line sensor strapping must be changed to change a loop start line to ground start. The levels which may be converted to ground start are:

- All switches, level 7
- Switches 1, 2, 5, 6, level 6

The levels which may be converted to ground start are illustrated in Fig. 2 of DFMP Division H, Section 110(1), General Assignment Recommendations.

B. Program Requirements

4.05 OEs 10000 and 80000 cannot be assigned due to generic program requirements.

C. Conference Circuit Ports

4.06 The three ports of a conference circuit (SD-3H230) are designated A, B, and C. Each port requires one OE assignment and must be assigned in the following manner.

4.07 The A port can be any assignable OE from any 0-numbered concentrator. The B and C ports must be related to the A port as follows:

B port

- same concentrator group number
- concentrator number 1
- same switch group number
- same switch number
- same level number

C port

- same concentrator group number
- concentrator number 0

- same switch group number
- advance switch number by one (if switch number equals 7, advance to 0)
- same level number

4.08 OE assignments for the A ports of conference circuits should come from the PNAL assignment sequence, and OE assignments for B ports and C ports should follow the above rules; however, OEs used for B ports and C ports should be noted on the PNAL.

D. Network Controller Failure Modes

4.09 Certain network controller failures are possible in which calls to and from particular office equipments could not be processed. Different failure modes affect different sets of OEs. Fig. 1 lists the sets of OEs which may be affected by different network controller failure modes.

4.10 The network administrator should not assign all or most members of trunk, service circuit, multiline hunt, or series completion groups to office equipments which may all fail in a network controller failure mode. Using the PNAL and following the procedure for its proper use will ensure that group members are not all assigned to failure mode equipment.

E. Station Ringer Test Ports

4.11 The station ringer test circuit (part of the peripheral test circuit unit, SD-3H520) requires an OE assignment for each of its two ports (port 0 and port 1). Port 0 can be assigned to any 0-numbered concentrator. Port 1 must be assigned to the same level, switch, switch group, and concentrator group as port 0 but in concentrator 1.

F. Test Line Terminals

4.12 A certain quantity of lines which will not be used for customer service at the time of cutover must be assigned to the ESS 3100 form as test line terminals. These lines are used for testing purposes prior to cutover. After cutover, the network administrator may assign test line terminals as he or she would assign any other OE. The number of test line terminals assigned should equal seven times the number of concentrator groups in the office. The terminals should be

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selected from OEs at the end of the PNAL, skipping any OEs assigned previously.

USING THE LIST

4.13 As stated in 4.01, the purpose of the PNAL is to make assignments in a new No. 3 ESS office such that good load balance is produced. Assignment of lines, trunks, and service circuits should be such that traffic loads are equally distributed over each of the network elements sensitive to blocking. The element in the network which requires balancing is the switch. The PNAL is constructed to accomplish switch balance.

4.14 Generally, the specific load for each line, trunk, or service circuit is not known; however, the loads are known for general classes of lines, trunks and service circuits. The PNAL is arranged to recognize these classes. When assignments of the members of a load class are made in the sequence of the lists, each class will be evenly spread over switches.

4.15 When using the PNAL, each load class should be assigned in the following sequence.

- (1) Conference circuits (see 4.06 through 4.08)
- (2) Station ringer test ports
- (3) Service circuits (active groups and then spare)
- (4) Trunk circuits (active groups and then spare)
- (5) Miscellaneous circuits
- (6) Loop start lines (high usage classes to low usage classes)
- (7) Ground start lines (beginning with level 6 assignments if not previously assigned, see 4.04.)
- (8) Test line terminals (begin at the end of the PNAL and work backwards, skipping any OEs previously assigned, see 4.12).

ALGORITHM

4.16 The ordered lists to which class assignments are made, sequences the concentrator group (CG), the concentrator (C), the switch group (SG),

the switch (S), and the level (L). A list is made for the specific quantity of CGs in the office.

4.17 In order to obtain an even spread of assignments over the components of the office (CG, C, SG, S, L), the first number in the list is from the first CG. Succeeding numbers are from each CG until all CGs are listed once. For example, the first five PNAL entries in a 5-CG office would be:

CG	C	SG	S	L
1	0			
2	0			
3	0			
4	0			
5	0			

4.18 The PNAL continues by repeating the CG numbers and by advancing the C number by 1 as follows:

CG	C	SG	S	L
1	1			
2	1			
3	1			
4	1			
5	1			

4.19 The next five entries would be the same as in 4.17 followed by the five entries in 4.18. The process is repeated until the number of entries equal the number of OEs in the office.

4.20 Next, SG numbers are added to the repeating CG and C numbers. Two different patterns are employed for the addition of SG numbers. One pattern is used for offices with a number of CGs not divisible by 3 (1, 2, 4, 5, 7, 8, 10, 11, 13, or 14), and the other pattern is used for offices with a number of CGs divisible by 3 (3, 6, 9, 12, or 15).

4.21 It is necessary to have a different pattern for offices with a number of CGs divisible by 3 in order to avoid duplication of OEs.

4.22 In the pattern used for offices with a number of concentrator groups not divisible by 3, the SG numbers use the sequence 0, 1, 2, 0, 1,

2, 0, 1, 2, etc. In the pattern used for offices with a number of concentrator groups divisible by 3, the SG numbers use the sequence 0, 1, 2 for the first CG/C-iteration, the sequence 1, 2, 0 for the second CG/C-iteration, and the sequence 2, 0, 1 for the third CG/C-iteration before returning to the sequence 0, 1, 2.

4.23 The two patterns described in 4.22 are illustrated in Fig. 2. Fig. 2A shows a pattern for an office with two CGs (not divisible by 3). Fig. 2B shows a pattern for an office with three CGs (divisible by 3).

4.24 "S" numbers are added in the sequence 0, 1, 2, 3, 4, 5, 6, 7 with each number in the sequence repeated six times the number of CGs in the office before using the next number in the sequence. If the office has two CGs, each number is repeated 12 times (6 by 2 CGs = 12) before the next digit is used. If the office has three CGs, each number is repeated 18 times (6 by 3 CGs = 18) before the next number is used.

4.25 The patterns in Fig. 2 are shown in Fig. 3 with "S" numbers added.

4.26 "L" numbers are added in the sequence 0, 1, 2, 3, 4, 5, 6, 7 with each number in the sequence repeated until the S number has completed its sequence of 0, 1, 2, 3, 4, 5, 6, 7. The PNAL is complete when the L number has gone through its sequence once.

4.27 Fig. 4 shows a complete PNAL for an office with two CGs.

4.28 Development of a mechanized system to generate the PNAL is presently under way. This practice will be reissued to include information on such a system when development is complete.

4.29 Forms 1 through 15, which may be used by the network administrator to prepare a PNAL, are provided at the end of this section. One form is provided for each possible office size, from one CG to 15. To use, the network administrator makes eight copies of the appropriate form, and completes the *level* entries on each form. Beginning with level 0, each form is completed with the same level number. The first form contains all of the 0 levels; the second form, all of the 1 levels; and so forth.

5. CUTOVER COMMITTEE

5.01 The cutover committee is a telephone company committee composed of the network administrator, the network design engineer, the equipment engineer, the outside plant engineer, and the network maintenance supervisor. The committee members are responsible for planning line, trunk, ODA, and testing activities for the cutover of a new No. 3 ESS office based on the installation schedule.

5.02 A coordinated effort on the part of cutover committee members is essential to the proper cutover of a No. 3 ESS office.

LEVEL FAILURE MODE

<u>Concentrator Group</u>	<u>Concentrator</u>	<u>Switch Group</u>	<u>Switch</u>	<u>Level</u>
1-7 or 8-15	0 and 1	0, 1, or 2	all	any one level

SWITCH FAILURE MODE

<u>Concentrator Group</u>	<u>Concentrator</u>	<u>Switch Group</u>	<u>Switch</u>	<u>Level</u>
1-7 or 8-15	0 or 1	0, 1, or 2	any one switch	all

Fig. 1—Office Equipment Affected by Network Controller Failure Modes

	CG	C	SG	S	L		CG	C	SG	S	L	
First Iteration	{	1	0	0		First Iteration	{	1	0	0		
		2	0	1				2	0	1		
		1	1	2				3	0	2		
		2	1	0				1	1	0		
Second Iteration	{	1	0	1		Second Iteration	{	2	1	1		
		2	0	2				3	1	2		
		1	1	0				1	0	1		
		2	1	1				2	0	2		
Third Iteration	{	1	0	2		Third Iteration	{	3	0	0		
		2	0	0				1	1	1		
		1	1	1				2	1	2		
		2	1	2				3	1	0		
		1	0	0			1	0	2			
		2	0	1			2	0	0			
		1	1	2			3	0	1			
		2	1	0			1	1	2			
		1	0	1			2	1	0			
		2	0	2			3	1	1			
		1	1	0			1	0	0			
		2	1	1			2	0	1			
		A					B					

Fig. 2—Switch Group Patterns of the PNAL

CG	C	SG	S	L	CG	C	SG	S	L
1	0	0	0		1	0	0	0	
2	0	1	0		2	0	1	0	
1	1	2	0		3	0	2	0	
2	1	0	0		1	1	0	0	
1	0	1	0		2	1	1	0	
2	0	2	0		3	1	2	0	
1	1	0	0		1	0	1	0	
2	1	1	0		2	0	2	0	
1	0	2	0		3	0	0	0	
2	0	0	0		1	1	1	0	
1	1	1	0		2	1	2	0	
2	1	2	0		3	1	0	0	
1	0	0	1		1	0	2	0	
2	0	1	1		2	0	0	0	
1	1	2	1		3	0	1	0	
2	1	0	1		1	1	2	0	
1	0	1	1		2	1	0	0	
2	0	2	1		3	1	1	0	
1	1	0	1		1	0	0	1	
2	1	1	1		2	0	1	1	

A

B

Fig. 3—Switch Patterns of the PNAL

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C S GCGSL	C S GCTSL	C S GCGSL					
10000	10040	10001	10041	10002	10042	10003	10043
20100	20140	20101	20141	20102	20142	20103	20143
11200	11240	11201	11241	11202	11242	11203	11243
21000	21040	21001	21041	21002	21042	21003	21043
10100	10140	10101	10141	10102	10142	10103	10143
20200	20240	20201	20241	20202	20242	20203	20243
11000	11040	11001	11041	11002	11042	11003	11043
21100	21140	21101	21141	21102	21142	21103	21143
10200	10240	10201	10241	10202	10242	10203	10243
20000	20040	20001	20041	20002	20042	20003	20043
11100	11140	11101	11141	11102	11142	11103	11143
21200	21240	21201	21241	21202	21242	21203	21243
10010	10050	10011	10051	10012	10052	10013	10053
20110	20150	20111	20151	20112	20152	20113	20153
11210	11250	11211	11251	11212	11252	11213	11253
21010	21050	21011	21051	21012	21052	21013	21053
10110	10150	10111	10151	10112	10152	10113	10153
20210	20250	20211	20251	20212	20252	20213	20253
11010	11050	11011	11051	11012	11052	11013	11053
21110	21150	21111	21151	21112	21152	21113	21153
10210	10250	10211	10251	10212	10252	10213	10253
20010	20050	20011	20051	20012	20052	20013	20053
11110	11150	11111	11151	11112	11152	11113	11153
21210	21250	21211	21251	21212	21252	21213	21253
10020	10060	10021	10061	10022	10062	10023	10063
20120	20160	20121	20161	20122	20162	20123	20163
11220	11260	11221	11261	11222	11262	11223	11263
21020	21060	21021	21061	21022	21062	21023	21063
10120	10160	10121	10161	10122	10162	10123	10163
20220	20260	20221	20261	20222	20262	20223	20263
11020	11060	11021	11061	11022	11062	11023	11063
21120	21160	21121	21161	21122	21162	21123	21163
10220	10260	10221	10261	10222	10262	10223	10263
20020	20060	20021	20061	20022	20062	20023	20063
11120	11160	11121	11161	11122	11162	11123	11163
21220	21260	21221	21261	21222	21262	21223	21263
10030	10070	10031	10071	10032	10072	10033	10073
20130	20170	20131	20171	20132	20172	20133	20173
11230	11270	11231	11271	11232	11272	11233	11273
21030	21070	21031	21071	21032	21072	21033	21073
10130	10170	10131	10171	10132	10172	10133	10173
20230	20270	20231	20271	20232	20272	20233	20273
11030	11070	11031	11071	11032	11072	11033	11073
21130	21170	21131	21171	21132	21172	21133	21173
10230	10270	10231	10271	10232	10272	10233	10273
20030	20070	20031	20071	20032	20072	20033	20073
11130	11170	11131	11171	11132	11172	11133	11173
21230	21270	21231	21271	21232	21272	21233	21273

Fig. 4—PNAL for an Office with Two Concentrator Groups (Sheet 1 of 2)

| C S
GCGSL |
|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| 10004 | 10044 | 10005 | 10045 | 10006 | 10046 | 10007 | 10047 |
| 20104 | 20144 | 20105 | 20145 | 20106 | 20146 | 20107 | 20147 |
| 11204 | 11244 | 11205 | 11245 | 11206 | 11246 | 11207 | 11247 |
| 21004 | 21044 | 21005 | 21045 | 21006 | 21046 | 21007 | 21047 |
| 10104 | 10144 | 10105 | 10145 | 10106 | 10146 | 10107 | 10147 |
| 20204 | 20244 | 20205 | 20245 | 20206 | 20246 | 20207 | 20247 |
| 11004 | 11044 | 11005 | 11045 | 11006 | 11046 | 11007 | 11047 |
| 21104 | 21144 | 21105 | 21145 | 21106 | 21146 | 21107 | 21147 |
| 10204 | 10244 | 10205 | 10245 | 10206 | 10246 | 10207 | 10247 |
| 20004 | 20044 | 20005 | 20045 | 20006 | 20046 | 20007 | 20047 |
| 11104 | 11144 | 11105 | 11145 | 11106 | 11146 | 11107 | 11147 |
| 21204 | 21244 | 21205 | 21245 | 21206 | 21246 | 21207 | 21247 |
| 10014 | 10054 | 10015 | 10055 | 10016 | 10056 | 10017 | 10057 |
| 20114 | 20154 | 20115 | 20155 | 20116 | 20156 | 20117 | 20157 |
| 11214 | 11254 | 11215 | 11255 | 11216 | 11256 | 11217 | 11257 |
| 21014 | 21054 | 21015 | 21055 | 21016 | 21056 | 21017 | 21057 |
| 10114 | 10154 | 10115 | 10155 | 10116 | 10156 | 10117 | 10157 |
| 20214 | 20254 | 20215 | 20255 | 20216 | 20256 | 20217 | 20257 |
| 11014 | 11054 | 11015 | 11055 | 11016 | 11056 | 11017 | 11057 |
| 21114 | 21154 | 21115 | 21155 | 21116 | 21156 | 21117 | 21157 |
| 10214 | 10254 | 10215 | 10255 | 10216 | 10256 | 10217 | 10257 |
| 20014 | 20054 | 20015 | 20055 | 20016 | 20056 | 20017 | 20057 |
| 11114 | 11154 | 11115 | 11155 | 11116 | 11156 | 11117 | 11157 |
| 21214 | 21254 | 21215 | 21255 | 21216 | 21256 | 21217 | 21257 |
| 10024 | 10064 | 10025 | 10065 | 10026 | 10066 | 10027 | 10067 |
| 20124 | 20164 | 20125 | 20165 | 20126 | 20166 | 20127 | 20167 |
| 11224 | 11264 | 11225 | 11265 | 11226 | 11266 | 11227 | 11267 |
| 21024 | 21064 | 21025 | 21065 | 21026 | 21066 | 21027 | 21067 |
| 10124 | 10164 | 10125 | 10165 | 10126 | 10166 | 10127 | 10167 |
| 20224 | 20264 | 20225 | 20265 | 20226 | 20266 | 20227 | 20267 |
| 11024 | 11064 | 11025 | 11065 | 11026 | 11066 | 11027 | 11067 |
| 21124 | 21164 | 21125 | 21165 | 21126 | 21166 | 21127 | 21167 |
| 10224 | 10264 | 10225 | 10265 | 10226 | 10266 | 10227 | 10267 |
| 20024 | 20064 | 20025 | 20065 | 20026 | 20066 | 20027 | 20067 |
| 11124 | 11164 | 11125 | 11165 | 11126 | 11166 | 11127 | 11167 |
| 21224 | 21264 | 21225 | 21265 | 21226 | 21266 | 21227 | 21267 |
| 10034 | 10074 | 10035 | 10075 | 10036 | 10076 | 10037 | 10077 |
| 20134 | 20174 | 20135 | 20175 | 20136 | 20176 | 20137 | 20177 |
| 11234 | 11274 | 11235 | 11275 | 11236 | 11276 | 11237 | 11277 |
| 21034 | 21074 | 21035 | 21075 | 21036 | 21076 | 21037 | 21077 |
| 10134 | 10174 | 10135 | 10175 | 10136 | 10176 | 10137 | 10177 |
| 20234 | 20274 | 20235 | 20275 | 20236 | 20276 | 20237 | 20277 |
| 11034 | 11074 | 11035 | 11075 | 11036 | 11076 | 11037 | 11077 |
| 21134 | 21174 | 21135 | 21175 | 21136 | 21176 | 21137 | 21177 |
| 10234 | 10274 | 10235 | 10275 | 10236 | 10276 | 10237 | 10277 |
| 20034 | 20074 | 20035 | 20075 | 20036 | 20076 | 20037 | 20077 |
| 11134 | 11174 | 11135 | 11175 | 11136 | 11176 | 11137 | 11177 |
| 21234 | 21274 | 21235 | 21275 | 21236 | 21276 | 21237 | 21277 |

Fig. 4—PNAL for an Office with Two Concentrator Groups (Sheet 2 of 2)

C S
GCGSL

- 1000
- 1110
- 1020
- 1100
- 1010
- 1120
- 1001
- 1111
- 1021
- 1101
- 1011
- 1121
- 1002
- 1112
- 1022
- 1102
- 1012
- 1122
- 1003
- 1113
- 1023
- 1103
- 1013
- 1123
- 1004
- 1114
- 1024
- 1104
- 1014
- 1124
- 1005
- 1115
- 1025
- 1105
- 1015
- 1125
- 1006
- 1116
- 1026
- 1106
- 1016
- 1126
- 1007
- 1117
- 1027
- 1107
- 1017
- 1127

LEVEL _____

C S	C S
GCGSL	GCGSL
1000	1004
2010	2014
1120	1124
2100	2104
1010	1014
2020	2024
1100	1104
2110	2114
1020	1024
2000	2004
1110	1114
2120	2124
1001	1005
2011	2015
1121	1125
2101	2105
1011	1015
2021	2025
1101	1105
2111	2115
1021	1025
2001	2005
1111	1115
2121	2125
1002	1006
2012	2016
1122	1126
2102	2106
1012	1016
2022	2026
1102	1106
2112	2116
1022	1026
2002	2006
1112	1116
2122	2126
1003	1007
2013	2017
1123	1127
2103	2107
1013	1017
2023	2027
1103	1107
2113	2117
1023	1027
2003	2007
1113	1117
2123	2127

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LEVEL _____

C S GCGSL	C S GCGSL	C S GCGSL
1000	1022	1015
2010	2002	2025
3020	3012	3005
1100	1122	1115
2110	2102	2125
3120	3112	3105
1010	1003	1025
2020	2013	2005
3000	3023	3015
1110	1103	1125
2120	2113	2105
3100	3123	3115
1020	1013	1006
2000	2023	2016
3010	3003	3026
1120	1113	1106
2100	2123	2116
3110	3103	3126
1001	1023	1016
2011	2003	2026
3021	3013	3006
1101	1123	1116
2111	2103	2126
3121	3113	3106
1011	1004	1026
2021	2014	2006
3001	3024	3016
1111	1104	1126
2121	2114	2106
3101	3124	3116
1021	1014	1007
2001	2024	2017
3011	3004	3027
1121	1114	1107
2101	2124	2117
3111	3104	3127
1002	1024	1017
2012	2004	2027
3022	3014	3007
1102	1124	1117
2112	2104	2127
3122	3114	3107
1012	1005	1027
2022	2015	2007
3002	3025	3017
1112	1105	1127
2122	2115	2107
3102	3125	3117

LEVEL _____

C S GCGSL	C S GCGSL	C S GCGSL	C S GCGSL
1000	1002	1004	1006
2010	2012	2014	2016
3020	3022	3024	3026
4000	4002	4004	4006
1110	1112	1114	1116
2120	2122	2124	2126
3100	3102	3104	3106
4110	4112	4114	4116
1020	1022	1024	1026
2000	2002	2004	2006
3010	3012	3014	3016
4020	4022	4024	4026
1100	1102	1104	1106
2110	2112	2114	2116
3120	3122	3124	3126
4100	4102	4104	4106
1010	1012	1014	1016
2020	2022	2024	2026
3000	3002	3004	3006
4010	4012	4014	4016
1120	1122	1124	1126
2100	2102	2104	2106
3110	3112	3114	3116
4120	4122	4124	4126
1001	1003	1005	1007
2011	2013	2015	2017
3021	3023	3025	3027
4001	4003	4005	4007
1111	1113	1115	1117
2121	2123	2125	2127
3101	3103	3105	3107
4111	4113	4115	4117
1021	1023	1025	1027
2001	2003	2005	2007
3011	3013	3015	3017
4021	4023	4025	4027
1101	1103	1105	1107
2111	2113	2115	2117
3121	3123	3125	3127
4101	4103	4105	4107
1011	1013	1015	1017
2021	2023	2025	2027
3001	3003	3005	3007
4011	4013	4015	4017
1121	1123	1125	1127
2101	2103	2105	2107
3111	3113	3115	3117
4121	4123	4125	4127

SECTION 11o(2)

LEVEL _____

C S	C S	C S	C S	C S
GCGSL	GCGSL	GCGSL	GCGSL	GCGSL
1000	4101	2103	5004	3006
2010	5111	3113	1114	4016
3020	1021	4123	2124	5026
4000	2001	5103	3104	1106
5010	3011	1013	4114	2116
1120	4021	2023	5124	3126
2100	5001	3003	1005	4106
3110	1111	4013	2015	5116
4120	2121	5023	3025	1026
5100	3101	1103	4005	2006
1010	4111	2113	5015	3016
2020	5121	3123	1125	4026
3000	1002	4103	2105	5006
4010	2012	5113	3115	1116
5020	3022	1023	4125	2126
1100	4002	2003	5105	3106
2110	5012	3013	1015	4116
3120	1122	4023	2025	5126
4100	2102	5003	3005	1007
5110	3112	1113	4015	2017
1020	4122	2123	5025	3027
2000	5102	3103	1105	4007
3010	1012	4113	2115	5017
4020	2022	5123	3125	1127
5000	3002	1004	4105	2107
1110	4012	2014	5115	3117
2120	5022	3024	1025	4127
3100	1102	4004	2005	5107
4110	2112	5014	3015	1017
5120	3122	1124	4025	2027
1001	4102	2104	5005	3007
2011	5112	3114	1115	4017
3021	1022	4124	2125	5027
4001	2002	5104	3105	1107
5011	3012	1014	4115	2117
1121	4022	2024	5125	3127
2101	5002	3004	1006	4107
3111	1112	4014	2016	5117
4121	2122	5024	3026	1027
5101	3102	1104	4006	2007
1011	4112	2114	5016	3017
2021	5122	3124	1126	4027
3001	1003	4104	2106	5007
4011	2013	5114	3116	1117
5021	3023	1024	4126	2127
1101	4003	2004	5106	3107
2111	5013	3014	1016	4117
3121	1123	4024	2026	5127

LOCAL _____

| C S
GCGSL |
|--------------|--------------|--------------|--------------|--------------|--------------|
| 1000 | 1011 | 1022 | 1004 | 1015 | 1026 |
| 2010 | 2021 | 2002 | 2014 | 2025 | 2006 |
| 3020 | 3001 | 3012 | 3024 | 3005 | 3016 |
| 4000 | 4011 | 4022 | 4004 | 4015 | 4026 |
| 5010 | 5021 | 5002 | 5014 | 5025 | 5006 |
| 6020 | 6001 | 6012 | 6024 | 6005 | 6016 |
| 1100 | 1111 | 1122 | 1104 | 1115 | 1126 |
| 2110 | 2121 | 2102 | 2114 | 2125 | 2106 |
| 3120 | 3101 | 3112 | 3124 | 3105 | 3116 |
| 4100 | 4111 | 4122 | 4104 | 4115 | 4126 |
| 5110 | 5121 | 5102 | 5114 | 5125 | 5106 |
| 6120 | 6101 | 6112 | 6124 | 6105 | 6116 |
| 1010 | 1021 | 1003 | 1014 | 1025 | 1007 |
| 2020 | 2001 | 2013 | 2024 | 2005 | 2017 |
| 3000 | 3011 | 3023 | 3004 | 3015 | 3027 |
| 4010 | 4021 | 4003 | 4014 | 4025 | 4007 |
| 5020 | 5001 | 5013 | 5024 | 5005 | 5017 |
| 6000 | 6011 | 6023 | 6004 | 6015 | 6027 |
| 1110 | 1121 | 1103 | 1114 | 1125 | 1107 |
| 2120 | 2101 | 2113 | 2124 | 2105 | 2117 |
| 3100 | 3111 | 3123 | 3104 | 3115 | 3127 |
| 4110 | 4121 | 4103 | 4114 | 4125 | 4107 |
| 5120 | 5101 | 5113 | 5124 | 5105 | 5117 |
| 6100 | 6111 | 6123 | 6104 | 6115 | 6127 |
| 1020 | 1002 | 1013 | 1024 | 1006 | 1017 |
| 2000 | 2012 | 2023 | 2004 | 2016 | 2027 |
| 3010 | 3022 | 3003 | 3014 | 3026 | 3007 |
| 4020 | 4002 | 4013 | 4024 | 4006 | 4017 |
| 5000 | 5012 | 5023 | 5004 | 5016 | 5027 |
| 6010 | 6022 | 6003 | 6014 | 6026 | 6007 |
| 1120 | 1102 | 1113 | 1124 | 1106 | 1117 |
| 2100 | 2112 | 2123 | 2104 | 2116 | 2127 |
| 3110 | 3122 | 3103 | 3114 | 3126 | 3107 |
| 4120 | 4102 | 4113 | 4124 | 4106 | 4117 |
| 5100 | 5112 | 5123 | 5104 | 5116 | 5127 |
| 6110 | 6122 | 6103 | 6114 | 6126 | 6107 |
| 1001 | 1012 | 1023 | 1005 | 1016 | 1027 |
| 2011 | 2022 | 2003 | 2015 | 2026 | 2007 |
| 3021 | 3002 | 3013 | 3025 | 3006 | 3017 |
| 4001 | 4012 | 4023 | 4005 | 4016 | 4027 |
| 5011 | 5022 | 5003 | 5015 | 5026 | 5007 |
| 6021 | 6002 | 6013 | 6025 | 6006 | 6017 |
| 1101 | 1112 | 1123 | 1105 | 1116 | 1127 |
| 2111 | 2122 | 2103 | 2115 | 2126 | 2107 |
| 3121 | 3102 | 3113 | 3125 | 3106 | 3117 |
| 4101 | 4112 | 4123 | 4105 | 4116 | 4127 |
| 5111 | 5122 | 5103 | 5115 | 5126 | 5107 |
| 6121 | 6102 | 6113 | 6125 | 6106 | 6117 |

SECTION 11o(2)

LEVEL _____

| C S
GCGSL |
|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| 1000 | 7001 | 6102 | 5003 | 4104 | 3005 | 2106 |
| 2010 | 1111 | 7112 | 6013 | 5114 | 4015 | 3116 |
| 3020 | 2121 | 1022 | 7023 | 6124 | 5025 | 4126 |
| 4000 | 3101 | 2002 | 1103 | 7104 | 6005 | 5106 |
| 5010 | 4111 | 3012 | 2113 | 1014 | 7015 | 6116 |
| 6020 | 5121 | 4022 | 3123 | 2024 | 1125 | 7126 |
| 7000 | 6101 | 5002 | 4103 | 3004 | 2105 | 1007 |
| 1110 | 7111 | 6012 | 5113 | 4014 | 3115 | 2017 |
| 2120 | 1021 | 7022 | 6123 | 5024 | 4125 | 3027 |
| 3100 | 2001 | 1102 | 7103 | 6004 | 5105 | 4007 |
| 4110 | 3011 | 2112 | 1013 | 7014 | 6115 | 5017 |
| 5120 | 4021 | 3122 | 2023 | 1124 | 7125 | 6027 |
| 6100 | 5001 | 4102 | 3003 | 2104 | 1006 | 7007 |
| 7110 | 6011 | 5112 | 4013 | 3114 | 2016 | 1117 |
| 1020 | 7021 | 6122 | 5023 | 4124 | 3026 | 2127 |
| 2000 | 1101 | 7102 | 6003 | 5104 | 4006 | 3107 |
| 3010 | 2111 | 1012 | 7013 | 6114 | 5016 | 4117 |
| 4020 | 3121 | 2022 | 1123 | 7124 | 6026 | 5127 |
| 5000 | 4101 | 3002 | 2103 | 1005 | 7006 | 6107 |
| 6010 | 5111 | 4012 | 3113 | 2015 | 1116 | 7117 |
| 7020 | 6121 | 5022 | 4123 | 3025 | 2126 | 1027 |
| 1100 | 7101 | 6002 | 5103 | 4005 | 3106 | 2007 |
| 2110 | 1011 | 7012 | 6113 | 5015 | 4116 | 3017 |
| 3120 | 2021 | 1122 | 7123 | 6025 | 5126 | 4027 |
| 4100 | 3001 | 2102 | 1004 | 7005 | 6106 | 5007 |
| 5110 | 4011 | 3112 | 2014 | 1115 | 7116 | 6017 |
| 6120 | 5021 | 4122 | 3024 | 2125 | 1026 | 7027 |
| 7100 | 6001 | 5102 | 4004 | 3105 | 2006 | 1107 |
| 1010 | 7011 | 6112 | 5014 | 4115 | 3016 | 2117 |
| 2020 | 1121 | 7122 | 6024 | 5125 | 4026 | 3127 |
| 3000 | 2101 | 1003 | 7004 | 6105 | 5006 | 4107 |
| 4010 | 3111 | 2013 | 1114 | 7115 | 6016 | 5117 |
| 5020 | 4121 | 3023 | 2124 | 1025 | 7026 | 6127 |
| 6000 | 5101 | 4003 | 3104 | 2005 | 1106 | 7107 |
| 7010 | 6111 | 5013 | 4114 | 3015 | 2116 | 1017 |
| 1120 | 7121 | 6023 | 5124 | 4025 | 3126 | 2027 |
| 2100 | 1002 | 7003 | 6104 | 5005 | 4106 | 3007 |
| 3110 | 2012 | 1113 | 7114 | 6015 | 5116 | 4017 |
| 4120 | 3022 | 2123 | 1024 | 7025 | 6126 | 5027 |
| 5100 | 4002 | 3103 | 2004 | 1105 | 7106 | 6007 |
| 6110 | 5012 | 4113 | 3014 | 2115 | 1016 | 7017 |
| 7120 | 6022 | 5123 | 4024 | 3125 | 2026 | 1127 |
| 1001 | 7002 | 6103 | 5004 | 4105 | 3006 | 2107 |
| 2011 | 1112 | 7113 | 6014 | 5115 | 4016 | 3117 |
| 3021 | 2122 | 1023 | 7024 | 6125 | 5026 | 4127 |
| 4001 | 3102 | 2003 | 1104 | 7105 | 6006 | 5107 |
| 5011 | 4112 | 3013 | 2114 | 1015 | 7016 | 6117 |
| 6021 | 5122 | 4023 | 3124 | 2025 | 1126 | 7127 |

Form 7—PNAL Form for an Office with 7 Concentrator Groups

LOCAL _____

| C S
GCGSL |
|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| 1000 | 1001 | 1002 | 1003 | 1004 | 1005 | 1006 | 1007 |
| 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
| 3020 | 3021 | 3022 | 3023 | 3024 | 3025 | 3026 | 3027 |
| 4000 | 4001 | 4002 | 4003 | 4004 | 4005 | 4006 | 4007 |
| 5010 | 5011 | 5012 | 5013 | 5014 | 5015 | 5016 | 5017 |
| 6020 | 6021 | 6022 | 6023 | 6024 | 6025 | 6026 | 6027 |
| 7000 | 7001 | 7002 | 7003 | 7004 | 7005 | 7006 | 7007 |
| 8010 | 8011 | 8012 | 8013 | 8014 | 8015 | 8016 | 8017 |
| 1120 | 1121 | 1122 | 1123 | 1124 | 1125 | 1126 | 1127 |
| 2100 | 2101 | 2102 | 2103 | 2104 | 2105 | 2106 | 2107 |
| 3110 | 3111 | 3112 | 3113 | 3114 | 3115 | 3116 | 3117 |
| 4120 | 4121 | 4122 | 4123 | 4124 | 4125 | 4126 | 4127 |
| 5100 | 5101 | 5102 | 5103 | 5104 | 5105 | 5106 | 5107 |
| 6110 | 6111 | 6112 | 6113 | 6114 | 6115 | 6116 | 6117 |
| 7120 | 7121 | 7122 | 7123 | 7124 | 7125 | 7126 | 7127 |
| 8100 | 8101 | 8102 | 8103 | 8104 | 8105 | 8106 | 8107 |
| 1010 | 1011 | 1012 | 1013 | 1014 | 1015 | 1016 | 1017 |
| 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
| 3000 | 3001 | 3002 | 3003 | 3004 | 3005 | 3006 | 3007 |
| 4010 | 4011 | 4012 | 4013 | 4014 | 4015 | 4016 | 4017 |
| 5020 | 5021 | 5022 | 5023 | 5024 | 5025 | 5026 | 5027 |
| 6000 | 6001 | 6002 | 6003 | 6004 | 6005 | 6006 | 6007 |
| 7010 | 7011 | 7012 | 7013 | 7014 | 7015 | 7016 | 7017 |
| 8020 | 8021 | 8022 | 8023 | 8024 | 8025 | 8026 | 8027 |
| 1100 | 1101 | 1102 | 1103 | 1104 | 1105 | 1106 | 1107 |
| 2110 | 2111 | 2112 | 2113 | 2114 | 2115 | 2116 | 2117 |
| 3120 | 3121 | 3122 | 3123 | 3124 | 3125 | 3126 | 3127 |
| 4100 | 4101 | 4102 | 4103 | 4104 | 4105 | 4106 | 4107 |
| 5110 | 5111 | 5112 | 5113 | 5114 | 5115 | 5116 | 5117 |
| 6120 | 6121 | 6122 | 6123 | 6124 | 6125 | 6126 | 6127 |
| 7100 | 7101 | 7102 | 7103 | 7104 | 7105 | 7106 | 7107 |
| 8110 | 8111 | 8112 | 8113 | 8114 | 8115 | 8116 | 8117 |
| 1020 | 1021 | 1022 | 1023 | 1024 | 1025 | 1026 | 1027 |
| 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 |
| 3010 | 3011 | 3012 | 3013 | 3014 | 3015 | 3016 | 3017 |
| 4020 | 4021 | 4022 | 4023 | 4024 | 4025 | 4026 | 4027 |
| 5000 | 5001 | 5002 | 5003 | 5004 | 5005 | 5006 | 5007 |
| 6010 | 6011 | 6012 | 6013 | 6014 | 6015 | 6016 | 6017 |
| 7020 | 7021 | 7022 | 7023 | 7024 | 7025 | 7026 | 7027 |
| 8000 | 8001 | 8002 | 8003 | 8004 | 8005 | 8006 | 8007 |
| 1110 | 1111 | 1112 | 1113 | 1114 | 1115 | 1116 | 1117 |
| 2120 | 2121 | 2122 | 2123 | 2124 | 2125 | 2126 | 2127 |
| 3100 | 3101 | 3102 | 3103 | 3104 | 3105 | 3106 | 3107 |
| 4110 | 4111 | 4112 | 4113 | 4114 | 4115 | 4116 | 4117 |
| 5120 | 5121 | 5122 | 5123 | 5124 | 5125 | 5126 | 5127 |
| 6100 | 6101 | 6102 | 6103 | 6104 | 6105 | 6106 | 6107 |
| 7110 | 7111 | 7112 | 7113 | 7114 | 7115 | 7116 | 7117 |
| 8120 | 8121 | 8122 | 8123 | 8124 | 8125 | 8126 | 8127 |

LEVEL _____

| C S
GCGSL |
|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| 1000 | 4120 | 7021 | 1022 | 4113 | 7014 | 1015 | 4106 | 7007 |
| 2010 | 5100 | 8001 | 2002 | 5123 | 8024 | 2025 | 5116 | 8017 |
| 3020 | 6110 | 9011 | 3012 | 6103 | 9004 | 3005 | 6126 | 9027 |
| 4000 | 7120 | 1121 | 4022 | 7113 | 1114 | 4015 | 7106 | 1107 |
| 5010 | 8100 | 2101 | 5002 | 8123 | 2124 | 5025 | 8116 | 2117 |
| 6020 | 9110 | 3111 | 6012 | 9103 | 3104 | 6005 | 9126 | 3127 |
| 7000 | 1001 | 4121 | 7022 | 1023 | 4114 | 7015 | 1016 | 4107 |
| 8010 | 2011 | 5101 | 8002 | 2003 | 5124 | 8025 | 2026 | 5117 |
| 9020 | 3021 | 6111 | 9012 | 3013 | 6104 | 9005 | 3006 | 6127 |
| 1100 | 4001 | 7121 | 1122 | 4023 | 7114 | 1115 | 4016 | 7107 |
| 2110 | 5011 | 8101 | 2102 | 5003 | 8124 | 2125 | 5026 | 8117 |
| 3120 | 6021 | 9111 | 3112 | 6013 | 9104 | 3105 | 6006 | 9127 |
| 4100 | 7001 | 1002 | 4122 | 7023 | 1024 | 4115 | 7016 | 1017 |
| 5110 | 8011 | 2012 | 5102 | 8003 | 2004 | 5125 | 8026 | 2027 |
| 6120 | 9021 | 3022 | 6112 | 9013 | 3014 | 6105 | 9006 | 3007 |
| 7100 | 1101 | 4002 | 7122 | 1123 | 4024 | 7115 | 1116 | 4017 |
| 8110 | 2111 | 5012 | 8102 | 2103 | 5004 | 8125 | 2126 | 5027 |
| 9120 | 3121 | 6022 | 9112 | 3113 | 6014 | 9105 | 3106 | 6007 |
| 1010 | 4101 | 7002 | 1003 | 4123 | 7024 | 1025 | 4116 | 7017 |
| 2020 | 5111 | 8012 | 2013 | 5103 | 8004 | 2005 | 5126 | 8027 |
| 3000 | 6121 | 9022 | 3023 | 6113 | 9014 | 3015 | 6106 | 9007 |
| 4010 | 7101 | 1102 | 4003 | 7123 | 1124 | 4025 | 7116 | 1117 |
| 5020 | 8111 | 2112 | 5013 | 8103 | 2104 | 5005 | 8126 | 2127 |
| 6000 | 9121 | 3122 | 6023 | 9113 | 3114 | 6015 | 9106 | 3107 |
| 7010 | 1011 | 4102 | 7003 | 1004 | 4124 | 7025 | 1026 | 4117 |
| 8020 | 2021 | 5112 | 8013 | 2014 | 5104 | 8005 | 2006 | 5127 |
| 9000 | 3001 | 6122 | 9023 | 3024 | 6114 | 9015 | 3016 | 6107 |
| 1110 | 4011 | 7102 | 1103 | 4004 | 7124 | 1125 | 4026 | 7117 |
| 2120 | 5021 | 8112 | 2113 | 5014 | 8104 | 2105 | 5006 | 8127 |
| 3100 | 6001 | 9122 | 3123 | 6024 | 9114 | 3115 | 6016 | 9107 |
| 4110 | 7011 | 1012 | 4103 | 7004 | 1005 | 4125 | 7026 | 1027 |
| 5120 | 8021 | 2022 | 5113 | 8014 | 2015 | 5105 | 8006 | 2007 |
| 6100 | 9001 | 3002 | 6123 | 9024 | 3025 | 6115 | 9016 | 3017 |
| 7110 | 1111 | 4012 | 7103 | 1104 | 4005 | 7125 | 1126 | 4027 |
| 8120 | 2121 | 5022 | 8113 | 2114 | 5015 | 8105 | 2106 | 5007 |
| 9100 | 3101 | 6002 | 9123 | 3124 | 6025 | 9115 | 3116 | 6017 |
| 1020 | 4111 | 7012 | 1013 | 4104 | 7005 | 1006 | 4126 | 7027 |
| 2000 | 5121 | 8022 | 2023 | 5114 | 8015 | 2016 | 5106 | 8007 |
| 3010 | 6101 | 9002 | 3003 | 6124 | 9025 | 3026 | 6116 | 9017 |
| 4020 | 7111 | 1112 | 4013 | 7104 | 1105 | 4006 | 7126 | 1127 |
| 5000 | 8121 | 2122 | 5023 | 8114 | 2115 | 5016 | 8106 | 2107 |
| 6010 | 9101 | 3102 | 6003 | 9124 | 3125 | 6026 | 9116 | 3117 |
| 7020 | 1021 | 4112 | 7013 | 1014 | 4105 | 7006 | 1007 | 4127 |
| 8000 | 2001 | 5122 | 8023 | 2024 | 5115 | 8016 | 2017 | 5107 |
| 9010 | 3011 | 6102 | 9003 | 3004 | 6125 | 9026 | 3027 | 6117 |
| 1120 | 4021 | 7112 | 1113 | 4014 | 7105 | 1106 | 4007 | 7127 |
| 2100 | 5001 | 8122 | 2123 | 5024 | 8115 | 2116 | 5017 | 8107 |
| 3110 | 6011 | 9102 | 3103 | 6004 | 9125 | 3126 | 6027 | 9117 |

								LEVEL	
C S	C S	C S	C S	C S	C S	C S	C S	C S	C S
GCGSL									
1000	9000	7101	5002	3103	1004	9004	7105	5006	3107
2010	10010	8111	6012	4113	2014	10014	8115	6016	4117
3020	1120	9121	7022	5123	3024	1124	9125	7026	5127
4000	2100	10101	8002	6103	4004	2104	10105	8006	6107
5010	3110	1011	9012	7113	5014	3114	1015	9016	7117
6020	4120	2021	10022	8123	6024	4124	2025	10026	8127
7000	5100	3001	1102	9103	7004	5104	3005	1106	9107
8010	6110	4011	2112	10113	8014	6114	4015	2116	10117
9020	7120	5021	3122	1023	9024	7124	5025	3126	1027
10000	8100	6001	4102	2003	10004	8104	6005	4106	2007
1110	9110	7011	5112	3013	1114	9114	7015	5116	3017
2120	10120	8021	6122	4023	2124	10124	8025	6126	4027
3100	1001	9001	7102	5003	3104	1005	9005	7106	5007
4110	2011	10011	8112	6013	4114	2015	10015	8116	6017
5120	3021	1121	9122	7023	5124	3025	1125	9126	7027
6100	4001	2101	10102	8003	6104	4005	2105	10106	8007
7110	5011	3111	1012	9013	7114	5015	3115	1016	9017
8120	6021	4121	2022	10023	8124	6025	4125	2026	10027
9100	7001	5101	3002	1103	9104	7005	5105	3006	1107
10110	8011	6111	4012	2113	10114	8015	6115	4016	2117
1020	9021	7121	5022	3123	1024	9025	7125	5026	3127
2000	10001	8101	6002	4103	2004	10005	8105	6006	4107
3010	1111	9111	7012	5113	3014	1115	9115	7016	5117
4020	2121	10121	8022	6123	4024	2125	10125	8026	6127
5000	3101	1002	9002	7103	5004	3105	1006	9006	7107
6010	4111	2012	10012	8113	6014	4115	2016	10016	8117
7020	5121	3022	1122	9123	7024	5125	3026	1126	9127
8000	6101	4002	2102	10103	8004	6105	4006	2106	10107
9010	7111	5012	3112	1013	9014	7115	5016	3116	1017
10020	8121	6022	4122	2023	10024	8125	6026	4126	2027
1100	9101	7002	5102	3003	1104	9105	7006	5106	3007
2110	10111	8012	6112	4013	2114	10115	8016	6116	4017
3120	1021	9022	7122	5023	3124	1025	9026	7126	5027
4100	2001	10002	8102	6003	4104	2005	10006	8106	6007
5110	3011	1112	9112	7013	5114	3015	1116	9116	7017
6120	4021	2122	10122	8023	6124	4025	2126	10126	8027
7100	5001	3102	1003	9003	7104	5005	3106	1007	9007
8110	6011	4112	2013	10013	8114	6015	4116	2017	10017
9120	7021	5122	3023	1123	9124	7025	5126	3027	1127
10100	8001	6102	4003	2103	10104	8005	6106	4007	2107
1010	9011	7112	5013	3113	1014	9015	7116	5017	3117
2020	10021	8122	6023	4123	2024	10025	8126	6027	4127
3000	1101	9102	7003	5103	3004	1105	9106	7007	5107
4010	2111	10112	8013	6113	4014	2115	10116	8017	6117
5020	3121	1022	9023	7123	5024	3125	1026	9027	7127
6000	4101	2002	10003	8103	6004	4105	2006	10007	8107
7010	5111	3012	1113	9113	7014	5115	3016	1117	9117
8020	6121	4022	2123	10123	8024	6125	4026	2127	10127

LEVEL _____

| C S
GCGSL |
|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| 1000 | 5000 | 9001 | 2102 | 6102 | 10103 | 3004 | 7005 | 11005 | 4106 | 8107 | |
| 2010 | 6010 | 10011 | 3112 | 7112 | 11113 | 4014 | 8015 | 1115 | 5116 | 9117 | |
| 3020 | 7020 | 11021 | 4122 | 8122 | 1023 | 5024 | 9025 | 2125 | 6126 | 10127 | |
| 4000 | 8000 | 1101 | 5102 | 9102 | 2003 | 6004 | 10005 | 3105 | 7106 | 11107 | |
| 5010 | 9010 | 2111 | 6112 | 10112 | 3013 | 7014 | 11015 | 4115 | 8116 | 1017 | |
| 6020 | 10020 | 3121 | 7122 | 11122 | 4023 | 8024 | 1125 | 5125 | 9126 | 2027 | |
| 7000 | 11000 | 4101 | 8102 | 1003 | 5003 | 9004 | 2105 | 6105 | 10106 | 3007 | |
| 8010 | 1110 | 5111 | 9112 | 2013 | 6013 | 10014 | 3115 | 7115 | 11116 | 4017 | |
| 9020 | 2120 | 6121 | 10122 | 3023 | 7023 | 11024 | 4125 | 8125 | 1026 | 5027 | |
| 10000 | 3100 | 7101 | 11102 | 4003 | 8003 | 1104 | 5105 | 9105 | 2006 | 6007 | |
| 11010 | 4110 | 8111 | 1012 | 5013 | 9013 | 2114 | 6115 | 10115 | 3016 | 7017 | |
| 1120 | 5120 | 9121 | 2022 | 6023 | 10023 | 3124 | 7125 | 11125 | 4026 | 8027 | |
| 2100 | 6100 | 10101 | 3002 | 7003 | 11003 | 4104 | 8105 | 1006 | 5006 | 9007 | |
| 3110 | 7110 | 11111 | 4012 | 8013 | 1113 | 5114 | 9115 | 2016 | 6016 | 10017 | |
| 4120 | 8120 | 1021 | 5022 | 9023 | 2123 | 6124 | 10125 | 3026 | 7026 | 11027 | |
| 5100 | 9100 | 2001 | 6002 | 10003 | 3103 | 7104 | 11105 | 4006 | 8006 | 1107 | |
| 6110 | 10110 | 3011 | 7012 | 11013 | 4113 | 8114 | 1015 | 5016 | 9016 | 2117 | |
| 7120 | 11120 | 4021 | 8022 | 1123 | 5123 | 9124 | 2025 | 6026 | 10026 | 3127 | |
| 8100 | 1001 | 5001 | 9002 | 2103 | 6103 | 10104 | 3005 | 7006 | 11006 | 4107 | |
| 9110 | 2011 | 6011 | 10012 | 3113 | 7113 | 11114 | 4015 | 8016 | 1116 | 5117 | |
| 10120 | 3021 | 7021 | 11022 | 4123 | 8123 | 1024 | 5025 | 9026 | 2126 | 6127 | |
| 11100 | 4001 | 8001 | 1102 | 5103 | 9103 | 2004 | 6005 | 10006 | 3106 | 7107 | |
| 1010 | 5011 | 9011 | 2112 | 6113 | 10113 | 3014 | 7015 | 11016 | 4116 | 8117 | |
| 2020 | 6021 | 10021 | 3122 | 7123 | 11123 | 4024 | 8025 | 1126 | 5126 | 9127 | |
| 3000 | 7001 | 11001 | 4102 | 8103 | 1004 | 5004 | 9005 | 2106 | 6106 | 10107 | |
| 4010 | 8011 | 1111 | 5112 | 9113 | 2014 | 6014 | 10015 | 3116 | 7116 | 11117 | |
| 5020 | 9021 | 2121 | 6122 | 10123 | 3024 | 7024 | 11025 | 4126 | 8126 | 1027 | |
| 6000 | 10001 | 3101 | 7102 | 11103 | 4004 | 8004 | 1105 | 5106 | 9106 | 2007 | |
| 7010 | 11011 | 4111 | 8112 | 1013 | 5014 | 9014 | 2115 | 6116 | 10116 | 3017 | |
| 8020 | 1121 | 5121 | 9122 | 2023 | 6024 | 10024 | 3125 | 7126 | 11126 | 4027 | |
| 9000 | 2101 | 6101 | 10102 | 3003 | 7004 | 11004 | 4105 | 8106 | 1007 | 5007 | |
| 10010 | 3111 | 7111 | 11112 | 4013 | 8014 | 1114 | 5115 | 9116 | 2017 | 6017 | |
| 11020 | 4121 | 8121 | 1022 | 5023 | 9024 | 2124 | 6125 | 10126 | 3027 | 7027 | |
| 1100 | 5101 | 9101 | 2002 | 6003 | 10004 | 3104 | 7105 | 11106 | 4007 | 8007 | |
| 2110 | 6111 | 10111 | 3012 | 7013 | 11014 | 4114 | 8115 | 1016 | 5017 | 9017 | |
| 3120 | 7121 | 11121 | 4022 | 8023 | 1124 | 5124 | 9125 | 2026 | 6027 | 10027 | |
| 4100 | 8101 | 1002 | 5002 | 9003 | 2104 | 6104 | 10105 | 3006 | 7007 | 11007 | |
| 5110 | 9111 | 2012 | 6012 | 10013 | 3114 | 7114 | 11115 | 4016 | 8017 | 1117 | |
| 6120 | 10121 | 3022 | 7022 | 11023 | 4124 | 8124 | 1025 | 5026 | 9027 | 2127 | |
| 7100 | 11101 | 4002 | 8002 | 1103 | 5104 | 9104 | 2005 | 6006 | 10007 | 3107 | |
| 8110 | 1011 | 5012 | 9012 | 2113 | 6114 | 10114 | 3015 | 7016 | 11017 | 4117 | |
| 9120 | 2021 | 6022 | 10022 | 3123 | 7124 | 11124 | 4025 | 8026 | 1127 | 5127 | |
| 10100 | 3001 | 7002 | 11002 | 4103 | 8104 | 1005 | 5005 | 9006 | 2107 | 6107 | |
| 11110 | 4011 | 8012 | 1112 | 5113 | 9114 | 2015 | 6015 | 10016 | 3117 | 7117 | |
| 1020 | 5021 | 9022 | 2122 | 6123 | 10124 | 3025 | 7025 | 11026 | 4127 | 8127 | |
| 2000 | 6001 | 10002 | 3102 | 7103 | 11104 | 4005 | 8005 | 1106 | 5107 | 9107 | |
| 3010 | 7011 | 11012 | 4112 | 8113 | 1014 | 5015 | 9015 | 2116 | 6117 | 10117 | |
| 4020 | 8021 | 1122 | 5122 | 9123 | 2024 | 6025 | 10025 | 3126 | 7127 | 11127 | |

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GCGSL	GCGSL											
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2010	2000	2021	2012	2002	2023	2014	2004	2025	2016	2006	2027	
3020	3010	3001	3022	3012	3003	3024	3014	3005	3026	3016	3007	
4000	4020	4011	4002	4022	4013	4004	4024	4015	4006	4026	4017	
5010	5000	5021	5012	5002	5023	5014	5004	5025	5016	5006	5027	
6020	6010	6001	6022	6012	6003	6024	6014	6005	6026	6016	6007	
7000	7020	7011	7002	7022	7013	7004	7024	7015	7006	7026	7017	
8010	8000	8021	8012	8002	8023	8014	8004	8025	8016	8006	8027	
9020	9010	9001	9022	9012	9003	9024	9014	9005	9026	9016	9007	
10000	10020	10011	10002	10022	10013	10004	10024	10015	10006	10026	10017	
11010	11000	11021	11012	11002	11023	11014	11004	11025	11016	11006	11027	
12020	12010	12001	12022	12012	12003	12024	12014	12005	12026	12016	12007	
1100	1120	1111	1102	1122	1113	1104	1124	1115	1106	1126	1117	
2110	2100	2121	2112	2102	2123	2114	2104	2125	2116	2106	2127	
3120	3110	3101	3122	3112	3103	3124	3114	3105	3126	3116	3107	
4100	4120	4111	4102	4122	4113	4104	4124	4115	4106	4126	4117	
5110	5100	5121	5112	5102	5123	5114	5104	5125	5116	5106	5127	
6120	6110	6101	6122	6112	6103	6124	6114	6105	6126	6116	6107	
7100	7120	7111	7102	7122	7113	7104	7124	7115	7106	7126	7117	
8110	8100	8121	8112	8102	8123	8114	8104	8125	8116	8106	8127	
9120	9110	9101	9122	9112	9103	9124	9114	9105	9126	9116	9107	
10100	10120	10111	10102	10122	10113	10104	10124	10115	10106	10126	10117	
11110	11100	11121	11112	11102	11123	11114	11104	11125	11116	11106	11127	
12120	12110	12101	12122	12112	12103	12124	12114	12105	12126	12116	12107	
1010	1001	1021	1012	1003	1023	1014	1005	1025	1016	1007	1027	
2020	2011	2001	2022	2013	2003	2024	2015	2005	2026	2017	2007	
3000	3021	3011	3002	3023	3013	3004	3025	3015	3006	3027	3017	
4010	4001	4021	4012	4003	4023	4014	4005	4025	4016	4007	4027	
5020	5011	5001	5022	5013	5003	5024	5015	5005	5026	5017	5007	
6000	6021	6011	6002	6023	6013	6004	6025	6015	6006	6027	6017	
7010	7001	7021	7012	7003	7023	7014	7005	7025	7016	7007	7027	
8020	8011	8001	8022	8013	8003	8024	8015	8005	8026	8017	8007	
9000	9021	9011	9002	9023	9013	9004	9025	9015	9006	9027	9017	
10010	10001	10021	10012	10003	10023	10014	10005	10025	10016	10007	10027	
11020	11011	11001	11022	11013	11003	11024	11015	11005	11026	11017	11007	
12000	12021	12011	12002	12023	12013	12004	12025	12015	12006	12027	12017	
1110	1101	1121	1112	1103	1123	1114	1105	1125	1116	1107	1127	
2120	2111	2101	2122	2113	2103	2124	2115	2105	2126	2117	2107	
3100	3121	3111	3102	3123	3113	3104	3125	3115	3106	3127	3117	
4110	4101	4121	4112	4103	4123	4114	4105	4125	4116	4107	4127	
5120	5111	5101	5122	5113	5103	5124	5115	5105	5126	5117	5107	
6100	6121	6111	6102	6123	6113	6104	6125	6115	6106	6127	6117	
7110	7101	7121	7112	7103	7123	7114	7105	7125	7116	7107	7127	
8120	8111	8101	8122	8113	8103	8124	8115	8105	8126	8117	8107	
9100	9121	9111	9102	9123	9113	9104	9125	9115	9106	9127	9117	
10110	10101	10121	10112	10103	10123	10114	10105	10125	10116	10107	10127	
11120	11111	11101	11122	11113	11103	11124	11115	11105	11126	11117	11107	
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												LEVEL	
C S	C S	C S	C S	C S	C S	C S	C S	C S	C S	C S	C S	C S	C S
GCGSL													
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3020	12120	8121	4121	13022	9023	5023	1024	10124	6125	2126	11026	7027	
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5010	1010	10111	6111	2112	11013	7013	3014	12114	8115	4116	13016	9017	
6020	2020	11121	7121	3122	12023	8023	4024	13124	9125	5126	1126	10027	
7000	3000	12101	8101	4102	13003	9003	5004	1005	10105	6106	2106	11007	
8010	4010	13111	9111	5112	1113	10013	6014	2015	11115	7116	3116	12017	
9020	5020	1021	10121	6122	2123	11023	7024	3025	12125	8126	4126	13027	
10000	6000	2001	11101	7102	3103	12003	8004	4005	13105	9106	5106	1107	
11010	7010	3011	12111	8112	4113	13013	9014	5015	1015	10116	6116	2117	
12020	8020	4021	13121	9122	5123	1123	10024	6025	2025	11126	7126	3127	
13000	9000	5001	1002	10102	6103	2103	11004	7005	3005	12106	8106	4107	
1110	10010	6011	2012	11112	7113	3113	12014	8015	4015	13116	9116	5117	
2120	11020	7021	3022	12122	8123	4123	13024	9025	5025	1026	10126	6127	
3100	12000	8001	4002	13102	9103	5103	1104	10005	6005	2006	11106	7107	
4110	13010	9011	5012	1012	10113	6113	2114	11015	7015	3016	12116	8117	
5120	1120	10021	6022	2022	11123	7123	3124	12025	8025	4026	13126	9127	
6100	2100	11001	7002	3002	12103	8103	4104	13005	9005	5006	1007	10107	
7110	3110	12011	8012	4012	13113	9113	5114	1115	10015	6016	2017	11117	
8120	4120	13021	9022	5022	1023	10123	6124	2125	11025	7026	3027	12127	
9100	5100	1101	10002	6002	2003	11103	7104	3105	12005	8006	4007	13107	
10110	6110	2111	11012	7012	3013	12113	8114	4115	13015	9016	5017	1017	
11120	7120	3121	12022	8022	4023	13123	9124	5125	1125	10026	6027	2027	
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5000	1001	10101	6102	2102	11003	7004	3004	12105	8105	4106	13007	9007	
6010	2011	11111	7112	3112	12013	8014	4014	13115	9115	5116	1117	10017	
7020	3021	12121	8122	4122	13023	9024	5024	1025	10125	6126	2127	11027	
8000	4001	13101	9102	5102	1103	10004	6004	2005	11105	7016	3107	12007	
9010	5011	1011	10112	6112	2113	11014	7014	3015	12115	8116	4117	13017	
10020	6021	2021	11122	7122	3123	12024	8024	4025	13125	9126	5127	1127	
11000	7001	3001	12102	8102	4103	13004	9004	5005	1006	10106	6107	2107	
12010	8011	4011	13112	9112	5113	1114	10014	6015	2016	11116	7117	3117	
13020	9021	5021	1022	10122	6123	2124	11024	7025	3026	12126	8127	4127	
1100	10001	6001	2002	11102	7103	3104	12004	8005	4006	13106	9107	5107	
2110	11011	7011	3012	12112	8113	4114	13014	9015	5016	1016	10117	6117	
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4100	13001	9001	5002	1003	10103	6104	2104	11005	7006	3006	12107	8107	
5110	1111	10011	6012	2013	11113	7114	3114	12015	8016	4016	13117	9117	
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8110	4111	13011	9012	5013	1013	10114	6114	2115	11016	7016	3017	12117	
9120	5121	1121	10022	6023	2023	11124	7124	3125	12026	8026	4027	13127	

													LEVEL _____	
C S	C S	C S	C S	C S	C S	C S	C S	C S	C S	C S	C S	C S	C S	C S
GCGSL	GCGSL													
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3020	9120	1121	7021	13122	5122	11023	3024	9124	1125	7025	13126	5126	11027	
4000	10100	2101	8001	14102	6102	12003	4004	10104	2105	8005	14106	6106	12007	
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6020	12120	4121	10021	2022	8122	14023	6024	12124	4125	10025	2026	8126	14027	
7000	13100	5101	11001	3002	9102	1103	7004	13104	5105	11005	3006	9106	1107	
8010	14110	6111	12011	4012	10112	2113	8014	14114	6115	12015	4016	10116	2117	
9020	1020	7121	13021	5022	11122	3123	9024	1024	7125	13025	5026	11126	3127	
10000	2000	8101	14001	6002	12102	4103	10004	2004	8105	14005	6006	12106	4107	
11010	3010	9111	1111	7012	13112	5113	11014	3014	9115	1115	7016	13116	5117	
12020	4020	10121	2121	8022	14122	6123	12024	4024	10125	2125	8026	14126	6127	
13000	5000	11101	3101	9002	1003	7103	13004	5004	11105	3105	9006	1007	7107	
14010	6010	12111	4111	10012	2013	8113	14014	6014	12115	4115	10016	2017	8117	
1120	7020	13121	5121	11022	3023	9123	1124	7024	13125	5125	11026	3027	9127	
2100	8000	14101	6101	12002	4003	10103	2104	8004	14105	6105	12006	4007	10107	
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4120	10020	2021	8121	14022	6023	12123	4124	10024	2025	8125	14026	6027	12127	
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6110	12010	4011	10111	2112	8013	14113	6114	12014	4015	10115	2116	8017	14117	
7120	13020	5021	11121	3122	9023	1023	7124	13024	5025	11125	3126	9027	1027	
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9110	1110	7011	13111	5112	11013	3013	9114	1114	7015	13115	5116	11017	3017	
10120	2120	8021	14121	6122	12023	4023	10124	2124	8025	14125	6126	12027	4027	
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12110	4110	10011	2012	8112	14013	6013	12114	4114	10015	2016	8116	14017	6017	
13120	5120	11021	3022	9122	1123	7023	13124	5124	11025	3026	9126	1127	7027	
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2020	8120	14021	6022	12122	4123	10023	2024	8124	14025	6026	12126	4127	10027	
3000	9100	1101	7002	13102	5103	11003	3004	9104	1105	7006	13106	5107	11007	
4010	10110	2111	8012	14112	6113	12013	4014	10114	2115	8016	14116	6117	12017	
5020	11120	3121	9022	1022	7123	13023	5024	11124	3125	9026	1026	7127	13027	
6000	12100	4101	10002	2002	8103	14003	6004	12104	4105	10006	2006	8107	14007	
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8020	14120	6121	12022	4022	10123	2123	8024	14124	6125	12026	4026	10127	2127	
9000	1001	7101	13002	5002	11103	3103	9004	1005	7105	13006	5006	11107	3107	
10010	2011	8111	14012	6012	12113	4113	10014	2015	8115	14016	6016	12117	4117	
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12000	4001	10101	2102	8002	14103	6103	12004	4005	10105	2106	8006	14107	6107	
13010	5011	11111	3112	9012	1013	7113	13014	5015	11115	3116	9016	1017	7117	
14020	6021	12121	4122	10022	2023	8123	14024	6025	12125	4126	10026	2027	8127	
1100	7001	13101	5102	11002	3003	9103	1104	7005	13105	5106	11006	3007	9107	
2110	8011	14111	6112	12012	4013	10113	2114	8015	14115	6116	12016	4017	10117	
3120	9021	1021	7122	13022	5023	11123	3124	9025	1025	7126	13026	5027	11127	
4100	10001	2001	8102	14002	6003	12103	4104	10005	2005	8106	14006	6007	12107	
5110	11011	3011	9112	1112	7013	13113	5114	11015	3015	9116	1116	7017	13117	
6120	12021	4021	10122	2122	8023	14123	6124	12025	4025	10126	2126	8027	14127	

														LEVEL
C S	C S	C S	C S	C S	C S	C S	C S	C S	C S	C S	C S	C S	C S	C S
GCGSL														
1000	4110	7001	10111	13002	1022	4103	7023	10104	13024	1015	4125	7016	10126	13017
2010	5120	8011	11121	14012	2002	5113	8003	11114	14004	2025	5105	8026	11106	14027
3020	6100	9021	12101	15022	3012	6123	9013	12124	15014	3005	6115	9006	12116	15007
4000	7110	10001	13111	1102	4022	7103	10023	13104	1124	4015	7125	10016	13126	1117
5010	8120	11011	14121	2112	5002	8113	11003	14114	2104	5025	8105	11026	14106	2127
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7000	10110	13001	1021	4102	7022	10103	13023	1014	4124	7015	10125	13016	1007	4117
8010	11120	14011	2001	5112	8002	11113	14003	2024	5104	8025	11105	14026	2017	5127
9020	12100	15021	3011	6122	9012	12123	15013	3004	6114	9005	12115	15006	3027	6107
10000	13110	1101	4021	7102	10022	13103	1123	4014	7124	10015	13125	1116	4007	7117
11010	14120	2111	5001	8112	11002	14113	2103	5024	8104	11025	14105	2126	5017	8127
12020	15100	3121	6011	9122	12012	15123	3113	6004	9114	12005	15115	3106	6027	9107
13000	1020	4101	7021	10102	13022	1013	4123	7014	10124	13015	1006	4116	7007	10117
14010	2000	5111	8001	11112	14002	2023	5103	8024	11104	14025	2016	5126	8017	11127
15020	3010	6121	9011	12122	15012	3003	6113	9004	12114	15005	3026	6106	9027	12107
1100	4020	7101	10021	13102	1122	4013	7123	10014	13124	1115	4006	7116	10007	13117
2110	5000	8111	11001	14112	2102	5023	8103	11024	14104	2125	5016	8126	11017	14127
3120	6010	9121	12011	15122	3112	6003	9113	12004	15114	3105	6026	9106	12027	15107
4100	7020	10101	13021	1012	4122	7013	10123	13014	1005	4115	7006	10116	13007	1027
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7100	10020	13101	1121	4012	7122	10013	13123	1114	4005	7115	10006	13116	1107	4027
8110	11000	14111	2101	5022	8102	11023	14103	2124	5015	8125	11016	14126	2117	5007
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10100	13020	1011	4121	7012	10122	13013	1004	4114	7005	10115	13006	1026	4107	7027
11110	14000	2021	5101	8022	11102	14023	2014	5124	8015	11125	14016	2006	5117	8007
12120	15010	3001	6111	9002	12112	15003	3024	6104	9025	12105	15026	3016	6127	9017
13100	1120	4011	7121	10012	13122	1113	4004	7114	10005	13115	1106	4026	7107	10027
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15120	3110	6001	9111	12002	15112	3103	6024	9104	12025	15105	3126	6016	9127	12017
1010	4120	7011	10121	13012	1003	4113	7004	10114	13005	1025	4106	7026	10107	13027
2020	5100	8021	11101	14022	2013	5123	8014	11124	14015	2005	5116	8006	11117	14007
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4010	7120	10011	13121	1112	4003	7113	10004	13114	1105	4025	7106	10026	13107	1127
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7010	10120	13011	1002	4112	7003	10113	13004	1024	4105	7025	10106	13026	1017	4127
8020	11100	14021	2012	5122	8013	11123	14014	2004	5115	8005	11116	14006	2027	5107
9000	12110	15001	3022	6102	9023	12103	15024	3014	6125	9015	12126	15016	3007	6117
10010	13120	1111	4002	7112	10003	13113	1104	4024	7105	10025	13106	1126	4017	7127
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12000	15110	3101	6022	9102	12023	15103	3124	6014	9125	12015	15126	3116	6007	9117
13010	1001	4111	7002	10112	13003	1023	4104	7024	10105	13025	1016	4126	7017	10127
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15000	3021	6101	9022	12102	15023	3013	6124	9014	12125	15015	3006	6116	9007	12117
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