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Agenda Item:

Source: Ericsson

Title: New downlink scrambling code grouping scheme for UTRA/FDD

Document for: Decision

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1. Motivation

It is essential to UTRA that the mobile terminals are competitive compared to the mobile terminals of the different 2nd generation systems. To make this true the standardization has to take into account that it should be possible to make both small and low complexity mobile terminals. This proposal is a new scrambling code grouping scheme that requires both much less complexity and less number of correlators for the third stage in the mobile station (MS) during initial cell search. Another advantage of the proposed scheme is that the third stage usually does not have to be done at all during a target cell search, cell reselection and handover, because list there is only one candidate in the neighbor belonging to the scrambling code group detected in stage 2. The cell planning in order to have as few codes as possible from the same scrambling code group in the same area becomes also easier.

2. Current scheme and the proposed scheme

The current scheme according to [1] and [2] is to divide 512 scrambling codes into 32 code groups (CG), with 16 scrambling codes per CG. Therefore, during initial cell search, the MS has to correlate with 16 scrambling codes in the identified CG. To reduce synchronization time, it is preferable that scrambling code correlations are performed in parallel. However, this requires the MS having 16 correlators dedicated for scrambling code correlations during initial cell search. If a MS is not equipped with 16 correlators, scrambling code correlations can not be performed in parallel, giving rise to an increase in synchronization time. Furthermore, it will be shown in the next section that the current scrambling code grouping scheme requires a rather complicated cell search scheme, with the complexity dominated by the scrambling code correlation stage.

To lessen the requirement of having 16 correlators to carry out scrambling code correlations in parallel and reduce the complexity of initial cell search, we propose that the number of CG to be increased to 256. This reduces the number of scrambling codes in a CG from 16 to 2, making it easy to perform parallel scrambling code correlations within the identified CG. The proposed scheme requires 256 codewords from a Comma-Free Reed-Solomon (RS) code. This can be achieved by using a (16,3) RS code over GF(17), which is the same code as used in [1]. However, in [1] only 32 comma-free codewords are used, whereas in the proposed scheme 256 comma-free codewords are used. Both the codebook used in [1] and in the proposed scheme has minimum symbol distance 14. It can be shown that with the proposed scheme, the complexity of initial cell search is significantly reduced.

In cell reselection and handoff scenarios the MS knows the different scrambling codes of the neighboring cells through signalling. Due to fact that the number of CG is larger in the proposed scheme it is possible for the MS to uniquely identify the scrambling code by identifying the CG. Thus the stage 3 of the cell search is not needed during handoff scenarios according to the proposed scheme.

In the current scheme the code planning plays an important role when it comes to complexity for the MS. This is because the CG can be assigned in a clustered or a distributed manner according to [3]. In the new scheme the clustered manner is not possible because of there is only 2 scrambling codes per CG compared to 16 for the current scheme.

The number of cell specific preamble sequences for random access is also equal to 256. By having the same number of codes both for number of RACH identities and the number of scrambling code groups there is also an option for the operators to tie the preamble sequence with a specific scrambling code group. This is of course up to the operators how to allocate the codes.

3. Complexity

Initial cell search in UTRA/FDD comprises of stages of (1) slot synchronization, (2) frame synchronization and CG identification, and (3) scrambling code identification. Since the complexity of the first stage is the same in the current scheme and the proposed scheme, in this section we only focus on the complexity of the second and third stages. Let N_2 and N_3 be the number of frames required during initial cell search for stage 2 and 3, respectively. The complexity of the current scheme during the second stage is

$$C_{A,2} = (32*5+32*7)*2*16\,N_2 + 17*16*3*\,N_2 + 512*16+512 \quad (1)$$

$$= 13104\,N_2 + 8704$$

In (1), the term "(32*5+32*7)" is for correlating with 17 Second Search Codes (SSC), utilizing Fast Walsh Transform (FWT). This term is multiplied by 2, for SSC correlations on I and Q channels, and then by 16 N_2, for there are 16 N_2 SSC symbols in N_2 frames. The term "17*16*3* N_2 " is for coherent demodulation of SSC symbols, assuming three operations for calculating the real part of a complex product. The term "512*16" is for calculating the metric for decoding the Comma-Free RS code. Finally, the term "512" is for finding the maximum metric among all 512 hypotheses (32 CG * 16 shifts).

Similarly, the complexity of the proposed scheme during the second stage is

$$C_{B,2} = (32*5+32*7)*2*16\,N_2 + 17*16*3*\,N_2 + 4096*16+4096 \quad (2)$$

$$= 13104\,N_2 + 69632$$

Note that the difference between (1) and (2) is in the operations for decoding the Comma-Free RS code. According to the proposed scheme, there are 4096 hypotheses (256 CG * 16 shifts) during the second stage of the proposed scheme.

The complexity of the current scheme during stage 3 is given by

$$C_{A,3} = 256*9*16*16\,N_3*2 \quad (3)$$

$$= 1179648\,N_3\ .$$

In (3), the term "256*9" is due to there are 256*9 chips in a slot scrambled by the scrambling code. This term is first multiplied by 16, for there are 16 scrambling codes to be correlated against, and then by 16 N_3, for there are 16 N_3 slots for stage 3, and finally by 2, for accounting for scrambling code correlations on both I and Q channels.

Similarly, the complexity of the proposed scheme in stage 3 is

$$C_{B,3} = 256*9*2*16\,N_3*2 \quad (4)$$

$$= 147456\,N_3\ .$$

The complexity of the current 3GPP scheme in stages 2 and 3 is

$$C_A = C_{A,2} + C_{A,3}$$

$$= 13104\,N_2 + 8704 + 1179648\,N_3 \qquad (5)$$

and the complexity of the proposed scheme in stages 2 and 3 is

$$C_B = C_{B,2} + C_{B,3} \qquad (6)$$

$$= 13104\,N_2 + 69632 + 147456\,N_3\ .$$

Table 1 lists the complexity of the current scheme and proposed scheme with various parameters N_2, and N_3. It is shown that with reasonable operating parameters the proposed scheme is much less complex than the current 3GPP scheme. The overall cell search complexity (stages 1, 2, and 3) of a target cell search can be reduced by a factor of 2 when the proposed scheme is used.

Table 1: Complexity of the current scheme and proposed scheme.

N_2	N_3	current scheme	Proposed scheme
1	1	1201456	230192
2	1	1214560	243296
2	0.5	624736	169568

4. Simulations

To evaluate the performance of the proposed scheme, the link simulation model illustrated in Figure 1 is adopted. Sector A is of interest. Signals from other sectors, together with thermal noise, are modeled as white Gaussian noise. Only the First Search Code (FSC) and Second Search Code (SSC) of sector A are generated. The multiple-access interference within sector A is also modeled as white Gaussian noise. In our simulation, it is assumed that FSC and SSC combined use 10% of the carrier power when they are transmitted. The ratio of P_A / N is varied to evaluate the average synchronization time required for the current 3GPP scheme and the proposed scheme.

The cell search procedure considered is shown in Figure 2. The synchronization time for each stage is set to 10 msec, i.e., both N_2 and N_3 are 1. The three cell search stages are carried out in parallel with stage *i* providing a candidate to stage (*i+1*) every 10 msec. These processes continue on until a true candidate is found at the end of stage 3. It is assumed that with 10 msec synchronization time, stage 3 is perfect, in the sense that it always rejects a false candidate from stage 2 and accepts only the true ones. This assumption is not favorable for the proposed scheme, as it should perform better than the current scheme in true operating scenario.

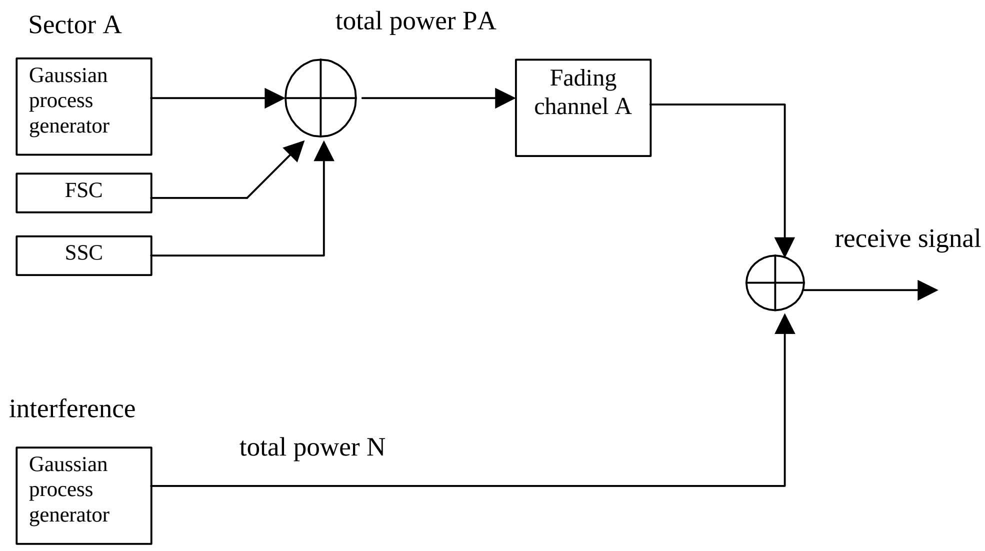

Figure 1: Simulation model.

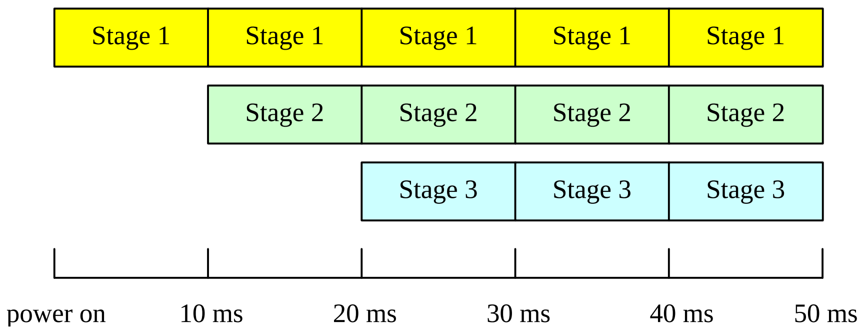

Figure 2: Cell search procedures after power on.

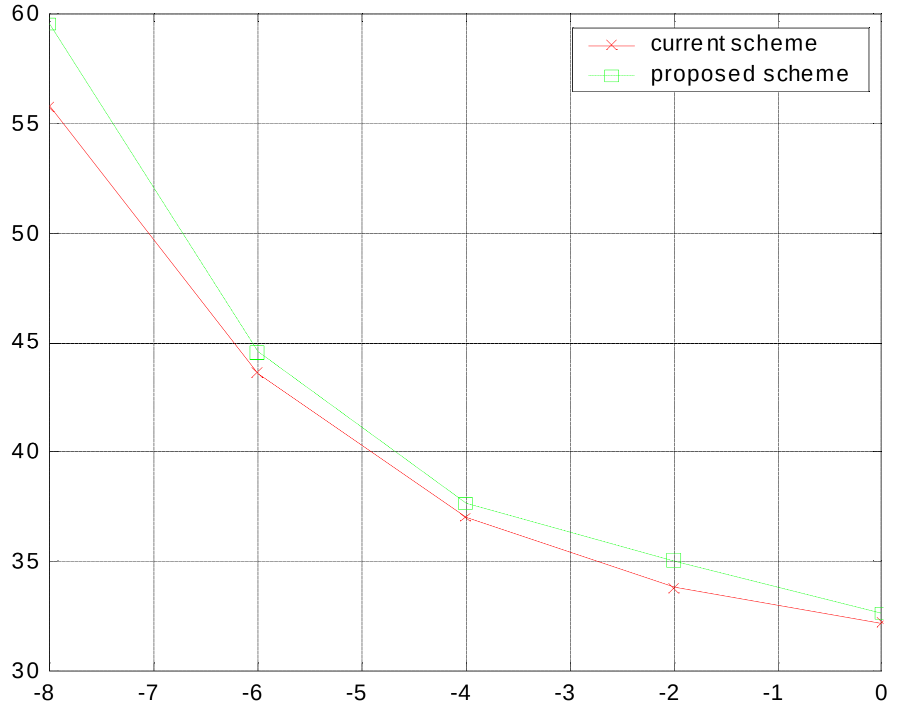

Figure 3: Average synchronization time in the flat fading channel. (velocity= 5 km/h)

The performance of the current scheme and the proposed scheme in the flat fading channel is illustrated in Figure 3. The values of P_A / N are chosen to cover reasonable operating scenarios. From Figure 3, it can be seen that the new scheme only introduces 1-3 msec extra delay, while reducing the complexity of cell search by a factor of 5, as indicated in Table 1. It should be noted that if a MS is not equipped with at least 16 correlators to carry out scrambling code correlations in parallel, there will be at least an 10 msec extra delay for the current scheme.

5. Conclusion

In this proposal it is shown that the initial cell search can be achieved with both less complexity and less number of correlators than it is done in the current scheme in the technical specification document [1]. It is also easily understood that the proposed scheme will make it much easier for the operators when it comes to planning of the scrambling codes and the scrambling code group assignments in the purpose of keeping down the complexity in the MS. From our complexity analysis, with 10 msec synchronization time, each for frame synchronization and CG identification (stage 2), and scrambling code identification (stage 3), the complexity of initial cell search during stages 2 and 3 can be reduced by a factor of 5 by adopting the proposed scheme. Such a significant reduction in complexity is achieved at the expense of only a small increase in the average cell search time. Our numerical results suggest that under practical operation scenarios the proposed scheme only increases the average cell search time by 1-3 msec. However, it should be noted that in our simulation model we assume the same synchronization time in stage 3 for both schemes. In practice, to achieve the same stage 3 performance as the current scheme, the synchronization time in stage 3 for the proposed scheme should be less, as the number of scrambling codes is reduced from 16 to 2. When this is considered, the actual difference in average cell search is less than what our numerical results suggest.

References

[1]. 3GPP RAN TS 25.213 V2.0.0 (1999-4). Spreading and modulation (FDD)

[2]. 3GPP RAN TS 25.214 V1.0.0 (1999-04). UTRA FDD Physical layer procedures

[3]. Christer Östberg, Yi-Pin Eric Wang and Fredrik Janecke, “Performance and Complexity of Techniques for Achieving Fast Sector Identification in an Asynchronous CDMA System,” Proceedings of Personal Multimedia Communications Conference, Yukosuka, November, 1998.

6. Text Proposal in [1]

5.2.3 Synchronisation codes

5.2.3.1 Code Generation

The Primary and Secondary code words, C_p and $\{C_1,\ldots,C_{17}\}$ are constructed as the position wise addition modulo 2 of a Hadamard sequence and a fixed so called hierarchical sequence. The Primary SCH is furthermore chosen to have good aperiodic auto correlation properties.
The hierarchical sequence y is constructed from two constituent sequences x_1 and x_2 of length n_1 and n_2 respectively using the following formula:
$y(i) = x_2(i \bmod n_2) + x_1(i \operatorname{div} n_2)$ *modulo 2*, $i = 0 \ldots (n_1 * n_2) - 1$
The constituent sequences x_1 and x_2 are chosen to be the following length 16 (i.e. $n_1 = n_2 = 16$) sequences:
x1 = < 0, 0, 1, 1, 0, 1, 0, 1, 1, 1, 1, 1, 0, 0, 0, 1 >
and
x_2 = < 0, 0, 1, 1, 1, 1, 0, 1, 0, 0, 1, 0, 0, 0, 1, 0 >
The Hadamard sequences are obtained as the rows in a matrix H_8 constructed recursively by:

$$H_0 = (0)$$
$$H_k = \begin{pmatrix} H_{k-1} & H_{k-1} \\ H_{k-1} & \overline{H}_{k-1} \end{pmatrix}, \quad k \geq 1$$

The rows are numbered from the top starting with row *0* (the all zeros sequence).
The Hadamard sequence *h* depends on the chosen code number *n* and is denoted h_n in the sequel.
This code word is chosen from every 8^{th} row of the matrix H_8. Therefore, there are 32 possible code words out of which 18 are used.
Furthermore, let $h_n(i)$ and $y(i)$ denote the *i*:th symbol of the sequence h_n and *y*, respectively.
Then h_n is equal to the row of H_8 numbered by the bit reverse of the 8 bit binary representation of *n*.
The definition of the *n*:th SCH code word follows (the left most index correspond to the chip transmitted first in each slot):
$C_{SCH,n} = \langle h_n(0)+y(0), h_n(1)+y(1), h_n(2)+y(2), \ldots, h_n(255)+y(255) \rangle$,
All sums of symbols are taken modulo 2.
These binary code words are converted to real valued sequences by the transformation ‘0’ -> ‘+1’, ‘1’ -> ‘-1’.
The Primary SCH and Secondary SCH code words are defined in terms of $C_{SCH,n}$ and the definition of C_p and $\{C_1,\ldots,C_{17}\}$ now follows as:
$C_p = C_{SCH,0}$
and

$C_i = C_{SCH,i}$, i=1,…,17
The definitions of C_p and $\{C_1,\ldots,C_{17}\}$ are such that a 32 point fast Hadamard transform can be utilised for detection.

5.2.3.2 Code Allocation

The ~~32~~256 sequences are constructed such that their cyclic-shifts are unique, i.e., a non-zero cyclic shift less than 16 of any of the ~~32~~256 sequences is not equivalent to some cyclic shift of any other of the ~~32~~256 sequences. Also, a non-zero cyclic shift less than 16 of any of the sequences is not equivalent to itself with any other cyclic shift less than 16. The following sequences are used to encode the ~~32~~256 different code groups each containing 16 scrambling codes (note that c_i indicates the i’th Secondary Short code of the 17 codes). Note that a Secondary Short code can be different from one time slot to another and that the sequence pattern can be different from one cell to another, depending on Scrambling Code Group of Scrambling Code the cell uses

~~Scrambling Code Groups~~	~~Slot Number~~															
	~~#1~~	~~#2~~	~~#3~~	~~#4~~	~~#5~~	~~#6~~	~~#7~~	~~#8~~	~~#9~~	~~#10~~	~~#11~~	~~#12~~	~~#13~~	~~#14~~	~~#15~~	~~#16~~

~~Group1~~	~~C_{1}~~	~~C_{1}~~	~~C_{2}~~	~~C_{11}~~	~~C_{6}~~	~~C_{3}~~	~~C_{15}~~	~~C_{7}~~	~~C_{8}~~	~~C_{8}~~	~~C_{7}~~	~~C_{15}~~	~~C_{3}~~	~~C_{6}~~	~~C_{11}~~	~~C_{2}~~
~~Group2~~	~~C_{1}~~	~~C_{2}~~	~~C_{9}~~	~~C_{3}~~	~~C_{10}~~	~~C_{11}~~	~~C_{13}~~	~~C_{13}~~	~~C_{11}~~	~~C_{10}~~	~~C_{3}~~	~~C_{9}~~	~~C_{2}~~	~~C_{1}~~	~~C_{16}~~	~~C_{16}~~
~~Group 3~~	~~C_{1}~~	~~C_{3}~~	~~C_{16}~~	~~C_{12}~~	~~C_{14}~~	~~C_{2}~~	~~C_{11}~~	~~C_{2}~~	~~C_{14}~~	~~C_{12}~~	~~C_{16}~~	~~C_{3}~~	~~C_{1}~~	~~C_{13}~~	~~C_{4}~~	~~C_{13}~~
~~Group 4~~	~~C_{1}~~	~~C_{4}~~	~~C_{6}~~	~~C_{4}~~	~~C_{1}~~	~~C_{10}~~	~~C_{9}~~	~~C_{8}~~	~~C_{17}~~	~~C_{14}~~	~~C_{12}~~	~~C_{14}~~	~~C_{17}~~	~~C_{8}~~	~~C_{9}~~	~~C_{10}~~
~~Group 5~~	~~C_{1}~~	~~C_{5}~~	~~C_{13}~~	~~C_{13}~~	~~C_{5}~~	~~C_{1}~~	~~C_{7}~~	~~C_{14}~~	~~C_{3}~~	~~C_{16}~~	~~C_{8}~~	~~C_{8}~~	~~C_{16}~~	~~C_{3}~~	~~C_{14}~~	~~C_{7}~~
~~Group 6~~	~~C_{1}~~	~~C_{6}~~	~~C_{3}~~	~~C_{5}~~	~~C_{9}~~	~~C_{9}~~	~~C_{5}~~	~~C_{3}~~	~~C_{6}~~	~~C_{1}~~	~~C_{4}~~	~~C_{2}~~	~~C_{15}~~	~~C_{15}~~	~~C_{2}~~	~~C_{4}~~
~~Group 7~~	~~C_{1}~~	~~C_{7}~~	~~C_{10}~~	~~C_{14}~~	~~C_{13}~~	~~C_{17}~~	~~C_{3}~~	~~C_{9}~~	~~C_{9}~~	~~C_{3}~~	~~C_{17}~~	~~C_{13}~~	~~C_{14}~~	~~C_{10}~~	~~C_{7}~~	~~C_{1}~~
~~Group 8~~	~~C_{1}~~	~~C_{8}~~	~~C_{17}~~	~~C_{6}~~	~~C_{17}~~	~~C_{8}~~	~~C_{1}~~	~~C_{15}~~	~~C_{12}~~	~~C_{5}~~	~~C_{1}~~	~~C_{7}~~	~~C_{13}~~	~~C_{5}~~	~~C_{12}~~	~~C_{15}~~
~~Group 9~~	~~C_{1}~~	~~C_{9}~~	~~C_{7}~~	~~C_{15}~~	~~C_{4}~~	~~C_{16}~~	~~C_{16}~~	~~C_{4}~~	~~C_{15}~~	~~C_{7}~~	~~C_{9}~~	~~C_{1}~~	~~C_{12}~~	~~C_{17}~~	~~C_{17}~~	~~C_{12}~~
~~Group 10~~	~~C_{1}~~	~~C_{10}~~	~~C_{14}~~	~~C_{7}~~	~~C_{8}~~	~~C_{7}~~	~~C_{14}~~	~~C_{10}~~	~~C_{1}~~	~~C_{9}~~	~~C_{5}~~	~~C_{12}~~	~~C_{11}~~	~~C_{12}~~	~~C_{5}~~	~~C_{9}~~
~~Group 11~~	~~C_{1}~~	~~C_{11}~~	~~C_{4}~~	~~C_{16}~~	~~C_{12}~~	~~C_{15}~~	~~C_{12}~~	~~C_{16}~~	~~C_{4}~~	~~C_{11}~~	~~C_{1}~~	~~C_{6}~~	~~C_{10}~~	~~C_{7}~~	~~C_{10}~~	~~C_{6}~~
~~Group 12~~	~~C_{1}~~	~~C_{12}~~	~~C_{11}~~	~~C_{8}~~	~~C_{16}~~	~~C_{6}~~	~~C_{10}~~	~~C_{5}~~	~~C_{7}~~	~~C_{13}~~	~~C_{14}~~	~~C_{17}~~	~~C_{9}~~	~~C_{2}~~	~~C_{15}~~	~~C_{3}~~
~~Group 13~~	~~C_{1}~~	~~C_{13}~~	~~C_{1}~~	~~C_{17}~~	~~C_{3}~~	~~C_{14}~~	~~C_{8}~~	~~C_{11}~~	~~C_{10}~~	~~C_{15}~~	~~C_{10}~~	~~C_{11}~~	~~C_{8}~~	~~C_{14}~~	~~C_{3}~~	~~C_{17}~~
~~Group 14~~	~~C_{1}~~	~~C_{14}~~	~~C_{8}~~	~~C_{9}~~	~~C_{7}~~	~~C_{5}~~	~~C_{6}~~	~~C_{17}~~	~~C_{13}~~	~~C_{17}~~	~~C_{6}~~	~~C_{5}~~	~~C_{7}~~	~~C_{9}~~	~~C_{8}~~	~~C_{14}~~
~~Group 15~~	~~C_{1}~~	~~C_{15}~~	~~C_{15}~~	~~C_{1}~~	~~C_{11}~~	~~C_{13}~~	~~C_{4}~~	~~C_{6}~~	~~C_{16}~~	~~C_{2}~~	~~C_{2}~~	~~C_{16}~~	~~C_{6}~~	~~C_{4}~~	~~C_{13}~~	~~C_{11}~~
~~Group 16~~	~~C_{1}~~	~~C_{16}~~	~~C_{5}~~	~~C_{10}~~	~~C_{15}~~	~~C_{4}~~	~~C_{2}~~	~~C_{12}~~	~~C_{2}~~	~~C_{4}~~	~~C_{15}~~	~~C_{10}~~	~~C_{5}~~	~~C_{16}~~	~~C_{1}~~	~~C_{8}~~
~~Group 17~~	~~C_{1}~~	~~C_{17}~~	~~C_{12}~~	~~C_{2}~~	~~C_{2}~~	~~C_{12}~~	~~C_{17}~~	~~C_{1}~~	~~C_{5}~~	~~C_{6}~~	~~C_{11}~~	~~C_{4}~~	~~C_{4}~~	~~C_{11}~~	~~C_{6}~~	~~C_{5}~~
~~Group 18~~	~~C_{2}~~	~~C_{8}~~	~~C_{11}~~	~~C_{15}~~	~~C_{14}~~	~~C_{1}~~	~~C_{4}~~	~~C_{10}~~	~~C_{10}~~	~~C_{4}~~	~~C_{1}~~	~~C_{14}~~	~~C_{15}~~	~~C_{11}~~	~~C_{8}~~	~~C_{2}~~
~~Group 19~~	~~C_{2}~~	~~C_{9}~~	~~C_{1}~~	~~C_{7}~~	~~C_{1}~~	~~C_{9}~~	~~C_{2}~~	~~C_{16}~~	~~C_{13}~~	~~C_{6}~~	~~C_{14}~~	~~C8~~	~~C_{14}~~	~~C_{6}~~	~~C_{13}~~	~~C_{16}~~
~~Group 20~~	~~C_{2}~~	~~C_{10}~~	~~C_{8}~~	~~C_{16}~~	~~C_{5}~~	~~C_{17}~~	~~C_{17}~~	~~C_{5}~~	~~C_{16}~~	~~C_{8}~~	~~C_{10}~~	~~C_{2}~~	~~C_{13}~~	~~C_{1}~~	~~C_{1}~~	~~C_{13}~~
~~Group 21~~	~~C_{2}~~	~~C_{11}~~	~~C_{15}~~	~~C_{8}~~	~~C_{9}~~	~~C_{8}~~	~~C_{15}~~	~~C_{11}~~	~~C_{2}~~	~~C_{10}~~	~~C_{6}~~	~~C_{13}~~	~~C_{12}~~	~~C_{13}~~	~~C_{6}~~	~~C_{10}~~
~~Group 22~~	~~C_{2}~~	~~C_{12}~~	~~C_{5}~~	~~C_{17}~~	~~C_{13}~~	~~C_{16}~~	~~C_{13}~~	~~C_{17}~~	~~C_{5}~~	~~C_{12}~~	~~C_{2}~~	~~C_{7}~~	~~C_{11}~~	~~C_{8}~~	~~C_{11}~~	~~C_{7}~~
~~Group 23~~	~~C_{2}~~	~~C_{13}~~	~~C_{12}~~	~~C_{9}~~	~~C_{17}~~	~~C_{7}~~	~~C_{11}~~	~~C_{6}~~	~~C_{8}~~	~~C_{14}~~	~~C_{15}~~	~~C_{1}~~	~~C_{10}~~	~~C_{3}~~	~~C_{16}~~	~~C_{4}~~
~~Group 24~~	~~C_{2}~~	~~C_{14}~~	~~C_{2}~~	~~C_{1}~~	~~C_{4}~~	~~C_{15}~~	~~C_{9}~~	~~C_{12}~~	~~C_{11}~~	~~C_{16}~~	~~C_{11}~~	~~C_{12}~~	~~C_{9}~~	~~C_{15}~~	~~C_{4}~~	~~C_{1}~~
~~Group 25~~	~~C_{2}~~	~~C_{15}~~	~~C_{9}~~	~~C_{10}~~	~~C_{8}~~	~~C_{6}~~	~~C_{7}~~	~~C_{1}~~	~~C_{14}~~	~~C_{1}~~	~~C_{7}~~	~~C_{6}~~	~~C_{8}~~	~~C_{10}~~	~~C_{9}~~	~~C_{15}~~
~~Group 26~~	~~C_{2}~~	~~C_{16}~~	~~C_{16}~~	~~C_{2}~~	~~C_{12}~~	~~C_{14}~~	~~C_{5}~~	~~C_{7}~~	~~C_{17}~~	~~C_{3}~~	~~C_{3}~~	~~C_{17}~~	~~C_{7}~~	~~C_{5}~~	~~C_{14}~~	~~C_{12}~~
~~Group 27~~	~~C_{2}~~	~~C_{17}~~	~~C_{6}~~	~~C_{11}~~	~~C_{16}~~	~~C_{5}~~	~~C_{3}~~	~~C_{13}~~	~~C_{3}~~	~~C_{5}~~	~~C_{16}~~	~~C_{11}~~	~~C_{6}~~	~~C_{17}~~	~~C_{2}~~	~~C_{9}~~
~~Group 28~~	~~C_{2}~~	~~C_{1}~~	~~C_{13}~~	~~C_{3}~~	~~C_{3}~~	~~C_{13}~~	~~C_{1}~~	~~C_{2}~~	~~C_{6}~~	~~C_{7}~~	~~C_{12}~~	~~C_{5}~~	~~C_{5}~~	~~C_{12}~~	~~C_{7}~~	~~C_{6}~~
~~Group 29~~	~~C_{2}~~	~~C_{2}~~	~~C_{3}~~	~~C_{12}~~	~~C_{7}~~	~~C_{4}~~	~~C_{16}~~	~~C_{8}~~	~~C_{9}~~	~~C_{9}~~	~~C8~~	~~C_{16}~~	~~C_{4}~~	~~C_{7}~~	~~C_{12}~~	~~C_{3}~~
~~Group 30~~	~~C_{2}~~	~~C_{3}~~	~~C_{10}~~	~~C_{4}~~	~~C_{11}~~	~~C_{12}~~	~~C_{14}~~	~~C_{14}~~	~~C_{12}~~	~~C_{11}~~	~~C_{4}~~	~~C_{10}~~	~~C_{3}~~	~~C_{2}~~	~~C_{17}~~	~~C_{17}~~
~~Group 31~~	~~C_{2}~~	~~C_{4}~~	~~C_{17}~~	~~C_{13}~~	~~C_{15}~~	~~C_{3}~~	~~C_{12}~~	~~C_{3}~~	~~C_{15}~~	~~C_{13}~~	~~C_{17}~~	~~C_{4}~~	~~C_{2}~~	~~C_{14}~~	~~C_{5}~~	~~C_{14}~~
~~Group 32~~	~~C_{2}~~	~~C_{5}~~	~~C_{7}~~	~~C_{5}~~	~~C_{2}~~	~~C_{11}~~	~~C_{10}~~	~~C_{9}~~	~~C_{1}~~	~~C_{15}~~	~~C_{13}~~	~~C_{15}~~	~~C_{1}~~	~~C_{9}~~	~~C_{10}~~	~~C_{11}~~
~~[SyncBTS]~~	~~C_{2}~~	~~C_{6}~~	~~C_{14}~~	~~C_{14}~~	~~C_{6}~~	~~C_{2}~~	~~C_{8}~~	~~C_{15}~~	~~C_{4}~~	~~C_{17}~~	~~C_{9}~~	~~C_{9}~~	~~C_{17}~~	~~C_{4}~~	~~C_{15}~~	~~C_{8}~~

Table 9 Spreading Code allocation for Secondary SCH Code

Scrambling	slot number															
Code Group	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	#14	#15	#16
Group 1	C_{13}	C_{7}	C_{2}	C_{17}	C_{10}	C_{12}	C_{10}	C_{4}	C_{14}	C_{13}	C_{4}	C_{12}	C_{14}	C_{2}	C_{1}	C_{1}
Group 2	C_{8}	C_{13}	C_{3}	C_{16}	C_{2}	C_{6}	C_{2}	C_{7}	C_{10}	C_{8}	C_{7}	C_{6}	C_{10}	C_{3}	C_{1}	C_{1}
Group 3	C_{3}	C_{2}	C_{4}	C_{15}	C_{11}	C_{17}	C_{11}	C_{10}	C_{6}	C_{3}	C_{10}	C_{17}	C_{6}	C_{4}	C_{1}	C_{1}
Group 4	C_{15}	C_{8}	C_{5}	C_{14}	C_{3}	C_{11}	C_{3}	C_{13}	C_{2}	C_{15}	C_{13}	C_{11}	C_{2}	C_{5}	C_{1}	C_{1}
Group 5	C_{10}	C_{14}	C_{6}	C_{13}	C_{12}	C_{5}	C_{12}	C_{16}	C_{15}	C_{10}	C_{16}	C_{5}	C_{15}	C_{6}	C_{1}	C_{1}
Group 6	C_{5}	C_{3}	C_{7}	C_{12}	C_{4}	C_{16}	C_{4}	C_{2}	C_{11}	C_{5}	C_{2}	C_{16}	C_{11}	C_{7}	C_{1}	C_{1}

Group 7	C_{17}	C_{9}	C_{8}	C_{11}	C_{13}	C_{10}	C_{13}	C_{5}	C_{7}	C_{17}	C_{5}	C_{10}	C_{7}	C_{8}	C_{1}	C_{1}
Group 8	C_{12}	C_{15}	C_{9}	C_{10}	C_{5}	C_{4}	C_{5}	C_{8}	C_{3}	C_{12}	C_{8}	C_{4}	C_{3}	C_{9}	C_{1}	C_{1}
Group 9	C_{7}	C_{4}	C_{10}	C_{9}	C_{14}	C_{15}	C_{14}	C_{11}	C_{16}	C_{7}	C_{11}	C_{15}	C_{16}	C_{10}	C_{1}	C_{1}
Group 10	C_{2}	C_{10}	C_{11}	C_{8}	C_{6}	C_{9}	C_{6}	C_{14}	C_{12}	C_{2}	C_{14}	C_{9}	C_{12}	C_{11}	C_{1}	C_{1}
Group 11	C_{14}	C_{16}	C_{12}	C_{7}	C_{15}	C_{3}	C_{15}	C_{17}	C_{8}	C_{14}	C_{17}	C_{3}	C_{8}	C_{12}	C_{1}	C_{1}
Group 12	C_{9}	C_{5}	C_{13}	C_{6}	C_{7}	C_{14}	C_{7}	C_{3}	C_{4}	C_{9}	C_{3}	C_{14}	C_{4}	C_{13}	C_{1}	C_{1}
Group 13	C_{4}	C_{11}	C_{14}	C_{5}	C_{16}	C_{8}	C_{16}	C_{6}	C_{17}	C_{4}	C_{6}	C_{8}	C_{17}	C_{14}	C_{1}	C_{1}
Group 14	C_{16}	C_{17}	C_{15}	C_{4}	C_{8}	C_{2}	C_{8}	C_{9}	C_{13}	C_{16}	C_{9}	C_{2}	C_{13}	C_{15}	C_{1}	C_{1}
Group 15	C_{11}	C_{6}	C_{16}	C_{3}	C_{17}	C_{13}	C_{17}	C_{12}	C_{9}	C_{11}	C_{12}	C_{13}	C_{9}	C_{16}	C_{1}	C_{1}
Group 16	C_{6}	C_{12}	C_{17}	C_{2}	C_{9}	C_{7}	C_{9}	C_{15}	C_{5}	C_{6}	C_{15}	C_{7}	C_{5}	C_{17}	C_{1}	C_{1}
Group 17	C_{15}	C_{3}	C_{11}	C_{15}	C_{2}	C_{3}	C_{14}	C_{5}	C_{5}	C_{11}	C_{8}	C_{14}	C_{13}	C_{1}	C_{2}	C_{1}
Group 18	C_{10}	C_{9}	C_{12}	C_{14}	C_{11}	C_{14}	C_{6}	C_{8}	C_{1}	C_{6}	C_{11}	C_{8}	C_{9}	C_{2}	C_{2}	C_{1}
Group 19	C_{5}	C_{15}	C_{13}	C_{13}	C_{3}	C_{8}	C_{15}	C_{11}	C_{14}	C_{1}	C_{14}	C_{2}	C_{5}	C_{3}	C_{2}	C_{1}
Group 20	C_{17}	C_{4}	C_{14}	C_{12}	C_{12}	C_{2}	C_{7}	C_{14}	C_{10}	C_{13}	C_{17}	C_{13}	C_{1}	C_{4}	C_{2}	C_{1}
Group 21	C_{12}	C_{10}	C_{15}	C_{11}	C_{4}	C_{13}	C_{16}	C_{17}	C_{6}	C_{8}	C_{3}	C_{7}	C_{14}	C_{5}	C_{2}	C_{1}
Group 22	C_{7}	C_{16}	C_{16}	C_{10}	C_{13}	C_{7}	C_{8}	C_{3}	C_{2}	C_{3}	C_{6}	C_{1}	C_{10}	C_{6}	C_{2}	C_{1}
Group 23	C_{2}	C_{5}	C_{17}	C_{9}	C_{5}	C_{1}	C_{17}	C_{6}	C_{15}	C_{15}	C_{9}	C_{12}	C_{6}	C_{7}	C_{2}	C_{1}
Group 24	C_{14}	C_{11}	C_{1}	C_{8}	C_{14}	C_{12}	C_{9}	C_{9}	C_{11}	C_{10}	C_{12}	C_{6}	C_{2}	C_{8}	C_{2}	C_{1}
Group 25	C_{9}	C_{17}	C_{2}	C_{7}	C_{6}	C_{6}	C_{1}	C_{12}	C_{7}	C_{5}	C_{15}	C_{17}	C_{15}	C_{9}	C_{2}	C_{1}
Group 26	C_{4}	C_{6}	C_{3}	C_{6}	C_{15}	C_{17}	C_{10}	C_{15}	C_{3}	C_{17}	C_{1}	C_{11}	C_{11}	C_{10}	C_{2}	C_{1}
Group 27	C_{11}	C_{1}	C_{5}	C_{4}	C_{16}	C_{5}	C_{11}	C_{4}	C_{12}	C_{7}	C_{7}	C_{16}	C_{3}	C_{12}	C_{2}	C_{1}
Group 28	C_{6}	C_{7}	C_{6}	C_{3}	C_{8}	C_{16}	C_{3}	C_{7}	C_{8}	C_{2}	C_{10}	C_{10}	C_{16}	C_{13}	C_{2}	C_{1}
Group 29	C_{13}	C_{2}	C_{8}	C_{1}	C_{9}	C_{4}	C_{4}	C_{13}	C_{17}	C_{9}	C_{16}	C_{15}	C_{8}	C_{15}	C_{2}	C_{1}
Group 30	C_{8}	C_{8}	C_{9}	C_{17}	C_{1}	C_{15}	C_{13}	C_{16}	C_{13}	C_{4}	C_{2}	C_{9}	C_{4}	C_{16}	C_{2}	C_{1}
Group 31	C_{3}	C_{14}	C_{10}	C_{16}	C_{10}	C_{9}	C_{5}	C_{2}	C_{9}	C_{16}	C_{5}	C_{3}	C_{17}	C_{17}	C_{2}	C_{1}
Group 32	C_{12}	C_{5}	C_{4}	C_{12}	C_{3}	C_{5}	C_{10}	C_{9}	C_{9}	C_{4}	C_{15}	C_{10}	C_{8}	C_{1}	C_{3}	C_{1}
Group 33	C_{7}	C_{11}	C_{5}	C_{11}	C_{12}	C_{16}	C_{2}	C_{12}	C_{5}	C_{16}	C_{1}	C_{4}	C_{4}	C_{2}	C_{3}	C_{1}
Group 34	C_{2}	C_{17}	C_{6}	C_{10}	C_{4}	C_{10}	C_{11}	C_{15}	C_{1}	C_{11}	C_{4}	C_{15}	C_{17}	C_{3}	C_{3}	C_{1}
Group 35	C_{9}	C_{12}	C_{8}	C_{8}	C_{5}	C_{15}	C_{12}	C_{4}	C_{10}	C_{1}	C_{10}	C_{3}	C_{9}	C_{5}	C_{3}	C_{1}
Group 36	C_{4}	C_{1}	C_{9}	C_{7}	C_{14}	C_{9}	C_{4}	C_{7}	C_{6}	C_{13}	C_{13}	C_{14}	C_{5}	C_{6}	C_{3}	C_{1}
Group 37	C_{16}	C_{7}	C_{10}	C_{6}	C_{6}	C_{3}	C_{13}	C_{10}	C_{2}	C_{8}	C_{16}	C_{8}	C_{1}	C_{7}	C_{3}	C_{1}
Group 38	C_{11}	C_{13}	C_{11}	C_{5}	C_{15}	C_{14}	C_{5}	C_{13}	C_{15}	C_{3}	C_{2}	C_{2}	C_{14}	C_{8}	C_{3}	C_{1}
Group 39	C_{6}	C_{2}	C_{12}	C_{4}	C_{7}	C_{8}	C_{14}	C_{16}	C_{11}	C_{15}	C_{5}	C_{13}	C_{10}	C_{9}	C_{3}	C_{1}
Group 40	C_{13}	C_{14}	C_{14}	C_{2}	C_{8}	C_{13}	C_{15}	C_{5}	C_{3}	C_{5}	C_{11}	C_{1}	C_{2}	C_{11}	C_{3}	C_{1}
Group 41	C_{8}	C_{3}	C_{15}	C_{1}	C_{17}	C_{7}	C_{7}	C_{8}	C_{16}	C_{17}	C_{14}	C_{12}	C_{15}	C_{12}	C_{3}	C_{1}
Group 42	C_{3}	C_{9}	C_{16}	C_{17}	C_{9}	C_{1}	C_{16}	C_{11}	C_{12}	C_{12}	C_{17}	C_{6}	C_{11}	C_{13}	C_{3}	C_{1}
Group 43	C_{15}	C_{15}	C_{17}	C_{16}	C_{1}	C_{12}	C_{8}	C_{14}	C_{8}	C_{7}	C_{3}	C_{17}	C_{7}	C_{14}	C_{3}	C_{1}
Group 44	C_{10}	C_{4}	C_{1}	C_{15}	C_{10}	C_{6}	C_{17}	C_{17}	C_{4}	C_{2}	C_{6}	C_{11}	C_{3}	C_{15}	C_{3}	C_{1}
Group 45	C_{5}	C_{10}	C_{2}	C_{14}	C_{2}	C_{17}	C_{9}	C_{3}	C_{17}	C_{14}	C_{9}	C_{5}	C_{16}	C_{16}	C_{3}	C_{1}
Group 46	C_{17}	C_{16}	C_{3}	C_{13}	C_{11}	C_{11}	C_{1}	C_{6}	C_{13}	C_{9}	C_{12}	C_{16}	C_{12}	C_{17}	C_{3}	C_{1}
Group 47	C_{4}	C_{13}	C_{15}	C_{8}	C_{13}	C_{1}	C_{15}	C_{16}	C_{9}	C_{9}	C_{8}	C_{17}	C_{16}	C_{2}	C_{4}	C_{1}
Group 48	C_{16}	C_{2}	C_{16}	C_{7}	C_{5}	C_{12}	C_{7}	C_{2}	C_{5}	C_{4}	C_{11}	C_{11}	C_{12}	C_{3}	C_{4}	C_{1}
Group 49	C_{11}	C_{8}	C_{17}	C_{6}	C_{14}	C_{6}	C_{16}	C_{5}	C_{1}	C_{16}	C_{14}	C_{5}	C_{8}	C_{4}	C_{4}	C_{1}
Group 50	C_{6}	C_{14}	C_{1}	C_{5}	C_{6}	C_{17}	C_{8}	C_{8}	C_{14}	C_{11}	C_{17}	C_{16}	C_{4}	C_{5}	C_{4}	C_{1}
Group 51	C_{13}	C_{9}	C_{3}	C_{3}	C_{7}	C_{5}	C_{9}	C_{14}	C_{6}	C_{1}	C_{6}	C_{4}	C_{13}	C_{7}	C_{4}	C_{1}
Group 52	C_{8}	C_{15}	C_{4}	C_{2}	C_{16}	C_{16}	C_{1}	C_{17}	C_{2}	C_{13}	C_{9}	C_{15}	C_{9}	C_{8}	C_{4}	C_{1}
Group 53	C_{3}	C_{4}	C_{5}	C_{1}	C_{8}	C_{10}	C_{10}	C_{3}	C_{15}	C_{8}	C_{12}	C_{9}	C_{5}	C_{9}	C_{4}	C_{1}
Group 54	C_{10}	C_{16}	C_{7}	C_{16}	C_{9}	C_{15}	C_{11}	C_{9}	C_{7}	C_{15}	C_{1}	C_{14}	C_{14}	C_{11}	C_{4}	C_{1}
Group 55	C_{5}	C_{5}	C_{8}	C_{15}	C_{1}	C_{9}	C_{3}	C_{12}	C_{3}	C_{10}	C_{4}	C_{8}	C_{10}	C_{12}	C_{4}	C_{1}
Group 56	C_{17}	C_{11}	C_{9}	C_{14}	C_{10}	C_{3}	C_{12}	C_{15}	C_{16}	C_{5}	C_{7}	C_{2}	C_{6}	C_{13}	C_{4}	C_{1}

Group 57	C_{7}	C_{6}	C_{11}	C_{12}	C_{11}	C_{8}	C_{13}	C_{4}	C_{8}	C_{12}	C_{13}	C_{7}	C_{15}	C_{15}	C_{4}	C_{1}
Group 58	C_{2}	C_{12}	C_{12}	C_{11}	C_{3}	C_{2}	C_{5}	C_{7}	C_{4}	C_{7}	C_{16}	C_{1}	C_{11}	C_{16}	C_{4}	C_{1}
Group 59	C_{14}	C_{1}	C_{13}	C_{10}	C_{12}	C_{13}	C_{14}	C_{10}	C_{17}	C_{2}	C_{2}	C_{12}	C_{7}	C_{17}	C_{4}	C_{1}
Group 60	C_{6}	C_{9}	C_{7}	C_{6}	C_{5}	C_{9}	C_{2}	C_{17}	C_{17}	C_{7}	C_{12}	C_{2}	C_{15}	C_{1}	C_{5}	C_{1}
Group 61	C_{13}	C_{4}	C_{9}	C_{4}	C_{6}	C_{14}	C_{3}	C_{6}	C_{9}	C_{14}	C_{1}	C_{7}	C_{7}	C_{3}	C_{5}	C_{1}
Group 62	C_{3}	C_{16}	C_{11}	C_{2}	C_{7}	C_{2}	C_{4}	C_{12}	C_{1}	C_{4}	C_{7}	C_{12}	C_{16}	C_{5}	C_{5}	C_{1}
Group 63	C_{15}	C_{5}	C_{12}	C_{1}	C_{16}	C_{13}	C_{13}	C_{15}	C_{14}	C_{16}	C_{10}	C_{6}	C_{12}	C_{6}	C_{5}	C_{1}
Group 64	C_{5}	C_{17}	C_{14}	C_{16}	C_{17}	C_{1}	C_{14}	C_{4}	C_{6}	C_{6}	C_{16}	C_{11}	C_{4}	C_{8}	C_{5}	C_{1}
Group 65	C_{12}	C_{12}	C_{16}	C_{14}	C_{1}	C_{6}	C_{15}	C_{10}	C_{15}	C_{13}	C_{5}	C_{16}	C_{13}	C_{10}	C_{5}	C_{1}
Group 66	C_{7}	C_{1}	C_{17}	C_{13}	C_{10}	C_{17}	C_{7}	C_{13}	C_{11}	C_{8}	C_{8}	C_{10}	C_{9}	C_{11}	C_{5}	C_{1}
Group 67	C_{2}	C_{7}	C_{1}	C_{12}	C_{2}	C_{11}	C_{16}	C_{16}	C_{7}	C_{3}	C_{11}	C_{4}	C_{5}	C_{12}	C_{5}	C_{1}
Group 68	C_{14}	C_{13}	C_{2}	C_{11}	C_{11}	C_{5}	C_{8}	C_{2}	C_{3}	C_{15}	C_{14}	C_{15}	C_{1}	C_{13}	C_{5}	C_{1}
Group 69	C_{9}	C_{2}	C_{3}	C_{10}	C_{3}	C_{16}	C_{17}	C_{5}	C_{16}	C_{10}	C_{17}	C_{9}	C_{14}	C_{14}	C_{5}	C_{1}
Group 70	C_{4}	C_{8}	C_{4}	C_{9}	C_{12}	C_{10}	C_{9}	C_{8}	C_{12}	C_{5}	C_{3}	C_{3}	C_{10}	C_{15}	C_{5}	C_{1}
Group 71	C_{11}	C_{3}	C_{6}	C_{7}	C_{13}	C_{15}	C_{10}	C_{14}	C_{4}	C_{12}	C_{9}	C_{8}	C_{2}	C_{17}	C_{5}	C_{1}
Group 72	C_{3}	C_{11}	C_{17}	C_{3}	C_{6}	C_{11}	C_{15}	C_{4}	C_{4}	C_{17}	C_{2}	C_{15}	C_{10}	C_{1}	C_{6}	C_{1}
Group 73	C_{15}	C_{17}	C_{1}	C_{2}	C_{15}	C_{5}	C_{7}	C_{7}	C_{17}	C_{12}	C_{5}	C_{9}	C_{6}	C_{2}	C_{6}	C_{1}
Group 74	C_{5}	C_{12}	C_{3}	C_{17}	C_{16}	C_{10}	C_{8}	C_{13}	C_{9}	C_{2}	C_{11}	C_{14}	C_{15}	C_{4}	C_{6}	C_{1}
Group 75	C_{17}	C_{1}	C_{4}	C_{16}	C_{8}	C_{4}	C_{17}	C_{16}	C_{5}	C_{14}	C_{14}	C_{8}	C_{11}	C_{5}	C_{6}	C_{1}
Group 76	C_{7}	C_{13}	C_{6}	C_{14}	C_{9}	C_{9}	C_{1}	C_{5}	C_{14}	C_{4}	C_{3}	C_{13}	C_{3}	C_{7}	C_{6}	C_{1}
Group 77	C_{2}	C_{2}	C_{7}	C_{13}	C_{1}	C_{3}	C_{10}	C_{8}	C_{10}	C_{16}	C_{6}	C_{7}	C_{16}	C_{8}	C_{6}	C_{1}
Group 78	C_{14}	C_{8}	C_{8}	C_{12}	C_{10}	C_{14}	C_{2}	C_{11}	C_{6}	C_{11}	C_{9}	C_{1}	C_{12}	C_{9}	C_{6}	C_{1}
Group 79	C_{9}	C_{14}	C_{9}	C_{11}	C_{2}	C_{8}	C_{11}	C_{14}	C_{2}	C_{6}	C_{12}	C_{12}	C_{8}	C_{10}	C_{6}	C_{1}
Group 80	C_{4}	C_{3}	C_{10}	C_{10}	C_{11}	C_{2}	C_{3}	C_{17}	C_{15}	C_{1}	C_{15}	C_{6}	C_{4}	C_{11}	C_{6}	C_{1}
Group 81	C_{16}	C_{9}	C_{11}	C_{9}	C_{3}	C_{13}	C_{12}	C_{3}	C_{11}	C_{13}	C_{1}	C_{17}	C_{17}	C_{12}	C_{6}	C_{1}
Group 82	C_{11}	C_{15}	C_{12}	C_{8}	C_{12}	C_{7}	C_{4}	C_{6}	C_{7}	C_{8}	C_{4}	C_{11}	C_{13}	C_{13}	C_{6}	C_{1}
Group 83	C_{13}	C_{16}	C_{15}	C_{5}	C_{5}	C_{6}	C_{14}	C_{15}	C_{12}	C_{10}	C_{13}	C_{10}	C_{1}	C_{16}	C_{6}	C_{1}
Group 84	C_{7}	C_{8}	C_{12}	C_{15}	C_{8}	C_{1}	C_{12}	C_{14}	C_{17}	C_{17}	C_{15}	C_{16}	C_{14}	C_{3}	C_{7}	C_{1}
Group 85	C_{2}	C_{14}	C_{13}	C_{14}	C_{17}	C_{12}	C_{4}	C_{17}	C_{13}	C_{12}	C_{1}	C_{10}	C_{10}	C_{4}	C_{7}	C_{1}
Group 86	C_{14}	C_{3}	C_{14}	C_{13}	C_{9}	C_{6}	C_{13}	C_{3}	C_{9}	C_{7}	C_{4}	C_{4}	C_{6}	C_{5}	C_{7}	C_{1}
Group 87	C_{9}	C_{9}	C_{15}	C_{12}	C_{1}	C_{17}	C_{5}	C_{6}	C_{5}	C_{2}	C_{7}	C_{15}	C_{2}	C_{6}	C_{7}	C_{1}
Group 88	C_{4}	C_{15}	C_{16}	C_{11}	C_{10}	C_{11}	C_{14}	C_{9}	C_{1}	C_{14}	C_{10}	C_{9}	C_{15}	C_{7}	C_{7}	C_{1}
Group 89	C_{16}	C_{4}	C_{17}	C_{10}	C_{2}	C_{5}	C_{6}	C_{12}	C_{14}	C_{9}	C_{13}	C_{3}	C_{11}	C_{8}	C_{7}	C_{1}
Group 90	C_{11}	C_{10}	C_{1}	C_{9}	C_{11}	C_{16}	C_{15}	C_{15}	C_{10}	C_{4}	C_{16}	C_{14}	C_{7}	C_{9}	C_{7}	C_{1}
Group 91	C_{13}	C_{11}	C_{4}	C_{6}	C_{4}	C_{15}	C_{8}	C_{7}	C_{15}	C_{6}	C_{8}	C_{13}	C_{12}	C_{12}	C_{7}	C_{1}
Group 92	C_{8}	C_{17}	C_{5}	C_{5}	C_{13}	C_{9}	C_{17}	C_{10}	C_{11}	C_{1}	C_{11}	C_{7}	C_{8}	C_{13}	C_{7}	C_{1}
Group 93	C_{3}	C_{6}	C_{6}	C_{4}	C_{5}	C_{3}	C_{9}	C_{13}	C_{7}	C_{13}	C_{14}	C_{1}	C_{4}	C_{14}	C_{7}	C_{1}
Group 94	C_{15}	C_{12}	C_{7}	C_{3}	C_{14}	C_{14}	C_{1}	C_{16}	C_{3}	C_{8}	C_{17}	C_{12}	C_{17}	C_{15}	C_{7}	C_{1}
Group 95	C_{10}	C_{1}	C_{8}	C_{2}	C_{6}	C_{8}	C_{10}	C_{2}	C_{16}	C_{3}	C_{3}	C_{6}	C_{13}	C_{16}	C_{7}	C_{1}
Group 96	C_{5}	C_{7}	C_{9}	C_{1}	C_{15}	C_{2}	C_{2}	C_{5}	C_{12}	C_{15}	C_{6}	C_{17}	C_{9}	C_{17}	C_{7}	C_{1}
Group 97	C_{14}	C_{15}	C_{3}	C_{14}	C_{8}	C_{15}	C_{7}	C_{12}	C_{12}	C_{3}	C_{16}	C_{7}	C_{17}	C_{1}	C_{8}	C_{1}
Group 98	C_{16}	C_{16}	C_{6}	C_{11}	C_{1}	C_{14}	C_{17}	C_{4}	C_{17}	C_{5}	C_{8}	C_{6}	C_{5}	C_{4}	C_{8}	C_{1}
Group 99	C_{11}	C_{5}	C_{7}	C_{10}	C_{10}	C_{8}	C_{9}	C_{7}	C_{13}	C_{17}	C_{11}	C_{17}	C_{1}	C_{5}	C_{8}	C_{1}
Group 100	C_{13}	C_{6}	C_{10}	C_{7}	C_{3}	C_{7}	C_{2}	C_{16}	C_{1}	C_{2}	C_{3}	C_{16}	C_{6}	C_{8}	C_{8}	C_{1}
Group 101	C_{8}	C_{12}	C_{11}	C_{6}	C_{12}	C_{1}	C_{11}	C_{2}	C_{14}	C_{14}	C_{6}	C_{10}	C_{2}	C_{9}	C_{8}	C_{1}
Group 102	C_{15}	C_{7}	C_{13}	C_{4}	C_{13}	C_{6}	C_{12}	C_{8}	C_{6}	C_{4}	C_{12}	C_{15}	C_{11}	C_{11}	C_{8}	C_{1}
Group 103	C_{10}	C_{13}	C_{14}	C_{3}	C_{5}	C_{17}	C_{4}	C_{11}	C_{2}	C_{16}	C_{15}	C_{9}	C_{7}	C_{12}	C_{8}	C_{1}
Group 104	C_{5}	C_{2}	C_{15}	C_{2}	C_{14}	C_{11}	C_{13}	C_{14}	C_{15}	C_{11}	C_{1}	C_{3}	C_{3}	C_{13}	C_{8}	C_{1}
Group 105	C_{17}	C_{8}	C_{16}	C_{1}	C_{6}	C_{5}	C_{5}	C_{17}	C_{11}	C_{6}	C_{4}	C_{14}	C_{16}	C_{14}	C_{8}	C_{1}
Group 106	C_{2}	C_{9}	C_{2}	C_{15}	C_{16}	C_{4}	C_{15}	C_{9}	C_{16}	C_{8}	C_{13}	C_{13}	C_{4}	C_{17}	C_{8}	C_{1}

Group 107	C_{11}	C_{17}	C_{13}	C_{11}	C_9	C_{17}	C_3	C_{16}	C_{16}	C_{13}	C_6	C_3	C_{12}	C_1	C_9	C_1
Group 108	C_6	C_6	C_{14}	C_{10}	C_1	C_{11}	C_{12}	C_2	C_{12}	C_8	C_9	C_{14}	C_8	C_2	C_9	C_1
Group 109	C_{13}	C_1	C_{16}	C_8	C_2	C_{16}	C_{13}	C_8	C_4	C_{15}	C_{15}	C_2	C_{17}	C_4	C_9	C_1
Group 110	C_8	C_7	C_{17}	C_7	C_{11}	C_{10}	C_5	C_{11}	C_{17}	C_{10}	C_1	C_{13}	C_{13}	C_5	C_9	C_1
Group 111	C_3	C_{13}	C_1	C_6	C_3	C_4	C_{14}	C_{14}	C_{13}	C_5	C_4	C_7	C_9	C_6	C_9	C_1
Group 112	C_{10}	C_8	C_3	C_4	C_4	C_9	C_{15}	C_3	C_5	C_{12}	C_{10}	C_{12}	C_1	C_8	C_9	C_1
Group 113	C_{17}	C_3	C_5	C_2	C_5	C_{14}	C_{16}	C_9	C_{14}	C_2	C_{16}	C_{17}	C_{10}	C_{10}	C_9	C_1
Group 114	C_7	C_{15}	C_7	C_{17}	C_6	C_2	C_{17}	C_{15}	C_6	C_9	C_5	C_5	C_2	C_{12}	C_9	C_1
Group 115	C_9	C_{16}	C_{10}	C_{14}	C_{16}	C_1	C_{10}	C_7	C_{11}	C_{11}	C_{14}	C_4	C_7	C_{15}	C_9	C_1
Group 116	C_4	C_5	C_{11}	C_{13}	C_8	C_{12}	C_2	C_{10}	C_7	C_6	C_{17}	C_{15}	C_3	C_{16}	C_9	C_1
Group 117	C_3	C_8	C_7	C_7	C_2	C_{13}	C_8	C_6	C_{16}	C_1	C_{16}	C_{10}	C_3	C_2	C_{10}	C_1
Group 118	C_{15}	C_{14}	C_8	C_6	C_{11}	C_7	C_{17}	C_9	C_{12}	C_{13}	C_2	C_4	C_{16}	C_3	C_{10}	C_1
Group 119	C_5	C_9	C_{10}	C_4	C_{12}	C_{12}	C_1	C_{15}	C_4	C_3	C_8	C_9	C_8	C_5	C_{10}	C_1
Group 120	C_{12}	C_4	C_{12}	C_2	C_{13}	C_{17}	C_2	C_4	C_{13}	C_{10}	C_{14}	C_{14}	C_{17}	C_7	C_{10}	C_1
Group 121	C_7	C_{10}	C_{13}	C_1	C_5	C_{11}	C_{11}	C_7	C_9	C_5	C_{17}	C_8	C_{13}	C_8	C_{10}	C_1
Group 122	C_2	C_{16}	C_{14}	C_{17}	C_{14}	C_5	C_3	C_{10}	C_5	C_{17}	C_3	C_2	C_9	C_9	C_{10}	C_1
Group 123	C_{14}	C_5	C_{15}	C_{16}	C_6	C_{16}	C_{12}	C_{13}	C_1	C_{12}	C_6	C_{13}	C_5	C_{10}	C_{10}	C_1
Group 124	C_4	C_{17}	C_{17}	C_{14}	C_7	C_4	C_{13}	C_2	C_{10}	C_2	C_{12}	C_1	C_{14}	C_{12}	C_{10}	C_1
Group 125	C_{17}	C_{10}	C_{17}	C_4	C_3	C_{15}	C_4	C_{10}	C_3	C_{11}	C_6	C_6	C_{15}	C_2	C_{11}	C_1
Group 126	C_{12}	C_{16}	C_1	C_3	C_{12}	C_9	C_{13}	C_{13}	C_{16}	C_6	C_9	C_{17}	C_{11}	C_3	C_{11}	C_1
Group 127	C_7	C_5	C_2	C_2	C_4	C_3	C_5	C_{16}	C_{12}	C_1	C_{12}	C_{11}	C_7	C_4	C_{11}	C_1
Group 128	C_9	C_6	C_5	C_{16}	C_{14}	C_2	C_{15}	C_8	C_{17}	C_3	C_4	C_{10}	C_{12}	C_7	C_{11}	C_1
Group 129	C_4	C_{12}	C_6	C_{15}	C_6	C_{13}	C_7	C_{11}	C_{13}	C_{15}	C_7	C_4	C_8	C_8	C_{11}	C_1
Group 130	C_{16}	C_1	C_7	C_{14}	C_{15}	C_7	C_{16}	C_{14}	C_9	C_{10}	C_{10}	C_{15}	C_4	C_9	C_{11}	C_1
Group 131	C_{13}	C_8	C_{11}	C_{10}	C_{17}	C_{17}	C_1	C_9	C_{10}	C_7	C_5	C_8	C_5	C_{13}	C_{11}	C_1
Group 132	C_{10}	C_{15}	C_{15}	C_6	C_2	C_{10}	C_3	C_4	C_{11}	C_4	C_{17}	C_1	C_6	C_{17}	C_{11}	C_1
Group 133	C_2	C_6	C_9	C_2	C_{12}	C_6	C_8	C_{11}	C_{11}	C_9	C_{10}	C_8	C_{14}	C_1	C_{12}	C_1
Group 134	C_6	C_8	C_{15}	C_{13}	C_{15}	C_4	C_{11}	C_{12}	C_4	C_{13}	C_{11}	C_6	C_7	C_7	C_{12}	C_1
Group 135	C_3	C_{15}	C_2	C_9	C_{17}	C_{14}	C_{13}	C_7	C_5	C_{10}	C_6	C_{16}	C_8	C_{11}	C_{12}	C_1
Group 136	C_5	C_{16}	C_5	C_6	C_{10}	C_{13}	C_6	C_{16}	C_{10}	C_{12}	C_{15}	C_{15}	C_{13}	C_{14}	C_{12}	C_1
Group 137	C_7	C_{17}	C_8	C_3	C_3	C_{12}	C_{16}	C_8	C_{15}	C_{14}	C_7	C_{14}	C_1	C_{17}	C_{12}	C_1
Group 138	C_{13}	C_{15}	C_6	C_{12}	C_{15}	C_1	C_6	C_{10}	C_{16}	C_{16}	C_{12}	C_{14}	C_{10}	C_5	C_{13}	C_1
Group 139	C_8	C_4	C_7	C_{11}	C_7	C_{12}	C_{15}	C_{13}	C_{12}	C_{11}	C_{15}	C_8	C_6	C_6	C_{13}	C_1
Group 140	C_{10}	C_5	C_{10}	C_8	C_{17}	C_{11}	C_8	C_5	C_{17}	C_{13}	C_7	C_7	C_{11}	C_9	C_{13}	C_1
Group 141	C_7	C_{12}	C_{14}	C_4	C_2	C_4	C_{10}	C_{17}	C_1	C_{10}	C_2	C_{17}	C_{12}	C_{13}	C_{13}	C_1
Group 142	C_{14}	C_7	C_{16}	C_2	C_3	C_9	C_{11}	C_6	C_{10}	C_{17}	C_8	C_5	C_4	C_{15}	C_{13}	C_1
Group 143	C_9	C_{13}	C_{17}	C_1	C_{12}	C_3	C_3	C_9	C_6	C_{12}	C_{11}	C_{16}	C_{17}	C_{16}	C_{13}	C_1
Group 144	C_8	C_{16}	C_{13}	C_{12}	C_6	C_4	C_9	C_5	C_{15}	C_7	C_{10}	C_{11}	C_{17}	C_2	C_{14}	C_1
Group 145	C_3	C_5	C_{14}	C_{11}	C_{15}	C_{15}	C_1	C_8	C_{11}	C_2	C_{13}	C_5	C_{13}	C_3	C_{14}	C_1
Group 146	C_{15}	C_{11}	C_{15}	C_{10}	C_7	C_9	C_{10}	C_{11}	C_7	C_{14}	C_{16}	C_{16}	C_9	C_4	C_{14}	C_1
Group 147	C_{10}	C_{17}	C_{16}	C_9	C_{16}	C_3	C_2	C_{14}	C_3	C_9	C_2	C_{10}	C_5	C_5	C_{14}	C_1
Group 148	C_2	C_{13}	C_4	C_4	C_{10}	C_7	C_{13}	C_{12}	C_{17}	C_1	C_{17}	C_{14}	C_2	C_{10}	C_{14}	C_1
Group 149	C_{11}	C_9	C_9	C_{16}	C_4	C_{11}	C_7	C_{10}	C_{14}	C_{10}	C_{15}	C_1	C_{16}	C_{15}	C_{14}	C_1
Group 150	C_{10}	C_{12}	C_5	C_{10}	C_{15}	C_{12}	C_{13}	C_6	C_6	C_5	C_{14}	C_{13}	C_{16}	C_1	C_{15}	C_1
Group 151	C_{12}	C_{13}	C_8	C_7	C_8	C_{11}	C_6	C_{15}	C_{11}	C_7	C_6	C_{12}	C_4	C_4	C_{15}	C_1
Group 152	C_2	C_8	C_{10}	C_5	C_9	C_{16}	C_7	C_4	C_3	C_{14}	C_{12}	C_{17}	C_{13}	C_6	C_{15}	C_1
Group 153	C_4	C_9	C_{13}	C_2	C_2	C_{15}	C_{17}	C_{13}	C_8	C_{16}	C_4	C_{16}	C_1	C_9	C_{15}	C_1
Group 154	C_3	C_{17}	C_3	C_{12}	C_{14}	C_7	C_{12}	C_{17}	C_{14}	C_{15}	C_8	C_8	C_7	C_{16}	C_{15}	C_1
Group 155	C_{14}	C_9	C_{17}	C_5	C_{17}	C_2	C_{10}	C_{16}	C_2	C_5	C_{10}	C_{14}	C_3	C_3	C_{16}	C_1
Group 156	C_{13}	C_{17}	C_7	C_{15}	C_{12}	C_{11}	C_5	C_3	C_8	C_4	C_{14}	C_6	C_9	C_{10}	C_{16}	C_1

Group 157	C_{8}	C_{6}	C_{8}	C_{14}	C_{4}	C_{5}	C_{14}	C_{6}	C_{4}	C_{16}	C_{17}	C_{17}	C_{5}	C_{11}	C_{16}	C_{1}
Group 158	C_{16}	C_{5}	C_{9}	C_{3}	C_{9}	C_{10}	C_{14}	C_{17}	C_{10}	C_{3}	C_{14}	C_{16}	C_{2}	C_{2}	C_{17}	C_{1}
Group 159	C_{13}	C_{12}	C_{13}	C_{16}	C_{11}	C_{3}	C_{16}	C_{12}	C_{11}	C_{17}	C_{9}	C_{9}	C_{3}	C_{6}	C_{17}	C_{1}
Group 160	C_{7}	C_{9}	C_{4}	C_{8}	C_{15}	C_{6}	C_{3}	C_{2}	C_{13}	C_{11}	C_{16}	C_{12}	C_{5}	C_{14}	C_{17}	C_{1}
Group 161	C_{9}	C_{14}	C_{4}	C_{17}	C_{3}	C_{7}	C_{3}	C_{8}	C_{11}	C_{9}	C_{8}	C_{7}	C_{11}	C_{4}	C_{2}	C_{2}
Group 162	C_{16}	C_{9}	C_{6}	C_{15}	C_{4}	C_{12}	C_{4}	C_{14}	C_{3}	C_{16}	C_{14}	C_{12}	C_{3}	C_{6}	C_{2}	C_{2}
Group 163	C_{11}	C_{15}	C_{7}	C_{14}	C_{13}	C_{6}	C_{13}	C_{17}	C_{16}	C_{11}	C_{17}	C_{6}	C_{16}	C_{7}	C_{2}	C_{2}
Group 164	C_{6}	C_{4}	C_{8}	C_{13}	C_{5}	C_{17}	C_{5}	C_{3}	C_{12}	C_{6}	C_{3}	C_{17}	C_{12}	C_{8}	C_{2}	C_{2}
Group 165	C_{13}	C_{16}	C_{10}	C_{11}	C_{6}	C_{5}	C_{6}	C_{9}	C_{4}	C_{13}	C_{9}	C_{5}	C_{4}	C_{10}	C_{2}	C_{2}
Group 166	C_{8}	C_{5}	C_{11}	C_{10}	C_{15}	C_{16}	C_{15}	C_{12}	C_{17}	C_{8}	C_{12}	C_{16}	C_{17}	C_{11}	C_{2}	C_{2}
Group 167	C_{3}	C_{11}	C_{12}	C_{9}	C_{7}	C_{10}	C_{7}	C_{15}	C_{13}	C_{3}	C_{15}	C_{10}	C_{13}	C_{12}	C_{2}	C_{2}
Group 168	C_{10}	C_{6}	C_{14}	C_{7}	C_{8}	C_{15}	C_{8}	C_{4}	C_{5}	C_{10}	C_{4}	C_{15}	C_{5}	C_{14}	C_{2}	C_{2}
Group 169	C_{16}	C_{4}	C_{12}	C_{16}	C_{3}	C_{4}	C_{15}	C_{6}	C_{6}	C_{12}	C_{9}	C_{15}	C_{14}	C_{2}	C_{3}	C_{2}
Group 170	C_{11}	C_{10}	C_{13}	C_{15}	C_{12}	C_{15}	C_{7}	C_{9}	C_{2}	C_{7}	C_{12}	C_{9}	C_{10}	C_{3}	C_{3}	C_{2}
Group 171	C_{6}	C_{16}	C_{14}	C_{14}	C_{4}	C_{9}	C_{16}	C_{12}	C_{15}	C_{2}	C_{15}	C_{3}	C_{6}	C_{4}	C_{3}	C_{2}
Group 172	C_{8}	C_{17}	C_{17}	C_{11}	C_{14}	C_{8}	C_{9}	C_{4}	C_{3}	C_{4}	C_{7}	C_{2}	C_{11}	C_{7}	C_{3}	C_{2}
Group 173	C_{15}	C_{12}	C_{2}	C_{9}	C_{15}	C_{13}	C_{10}	C_{10}	C_{12}	C_{11}	C_{13}	C_{7}	C_{3}	C_{9}	C_{3}	C_{2}
Group 174	C_{12}	C_{2}	C_{6}	C_{5}	C_{17}	C_{6}	C_{12}	C_{5}	C_{13}	C_{8}	C_{8}	C_{17}	C_{4}	C_{13}	C_{3}	C_{2}
Group 175	C_{7}	C_{8}	C_{7}	C_{4}	C_{9}	C_{17}	C_{4}	C_{8}	C_{9}	C_{3}	C_{11}	C_{11}	C_{17}	C_{14}	C_{3}	C_{2}
Group 176	C_{13}	C_{6}	C_{5}	C_{13}	C_{4}	C_{6}	C_{11}	C_{10}	C_{10}	C_{5}	C_{16}	C_{11}	C_{9}	C_{2}	C_{4}	C_{2}
Group 177	C_{8}	C_{12}	C_{6}	C_{12}	C_{13}	C_{17}	C_{3}	C_{13}	C_{6}	C_{17}	C_{2}	C_{5}	C_{5}	C_{3}	C_{4}	C_{2}
Group 178	C_{10}	C_{13}	C_{9}	C_{9}	C_{6}	C_{16}	C_{13}	C_{5}	C_{11}	C_{2}	C_{11}	C_{4}	C_{10}	C_{6}	C_{4}	C_{2}
Group 179	C_{5}	C_{2}	C_{10}	C_{8}	C_{15}	C_{10}	C_{5}	C_{8}	C_{7}	C_{14}	C_{14}	C_{15}	C_{6}	C_{7}	C_{4}	C_{2}
Group 180	C_{17}	C_{8}	C_{11}	C_{7}	C_{7}	C_{4}	C_{14}	C_{11}	C_{3}	C_{9}	C_{17}	C_{9}	C_{2}	C_{8}	C_{4}	C_{2}
Group 181	C_{12}	C_{14}	C_{12}	C_{6}	C_{16}	C_{15}	C_{6}	C_{14}	C_{16}	C_{4}	C_{3}	C_{3}	C_{15}	C_{9}	C_{4}	C_{2}
Group 182	C_{7}	C_{3}	C_{13}	C_{5}	C_{8}	C_{9}	C_{15}	C_{17}	C_{12}	C_{16}	C_{6}	C_{14}	C_{11}	C_{10}	C_{4}	C_{2}
Group 183	C_{14}	C_{15}	C_{15}	C_{3}	C_{9}	C_{14}	C_{16}	C_{6}	C_{4}	C_{6}	C_{12}	C_{2}	C_{3}	C_{12}	C_{4}	C_{2}
Group 184	C_{17}	C_{3}	C_{17}	C_{8}	C_{6}	C_{13}	C_{8}	C_{3}	C_{6}	C_{5}	C_{12}	C_{12}	C_{13}	C_{4}	C_{5}	C_{2}
Group 185	C_{14}	C_{10}	C_{4}	C_{4}	C_{8}	C_{6}	C_{10}	C_{15}	C_{7}	C_{2}	C_{7}	C_{5}	C_{14}	C_{8}	C_{5}	C_{2}
Group 186	C_{4}	C_{5}	C_{6}	C_{2}	C_{9}	C_{11}	C_{11}	C_{4}	C_{16}	C_{9}	C_{13}	C_{10}	C_{6}	C_{10}	C_{5}	C_{2}
Group 187	C_{11}	C_{17}	C_{8}	C_{17}	C_{10}	C_{16}	C_{12}	C_{10}	C_{8}	C_{16}	C_{2}	C_{15}	C_{15}	C_{12}	C_{5}	C_{2}
Group 188	C_{6}	C_{6}	C_{9}	C_{16}	C_{2}	C_{10}	C_{4}	C_{13}	C_{4}	C_{11}	C_{5}	C_{9}	C_{11}	C_{13}	C_{5}	C_{2}
Group 189	C_{8}	C_{7}	C_{12}	C_{13}	C_{12}	C_{9}	C_{14}	C_{5}	C_{9}	C_{13}	C_{14}	C_{8}	C_{16}	C_{16}	C_{5}	C_{2}
Group 190	C_{3}	C_{13}	C_{13}	C_{12}	C_{4}	C_{3}	C_{6}	C_{8}	C_{5}	C_{8}	C_{17}	C_{2}	C_{12}	C_{17}	C_{5}	C_{2}
Group 191	C_{14}	C_{5}	C_{10}	C_{5}	C_{7}	C_{15}	C_{4}	C_{7}	C_{10}	C_{15}	C_{2}	C_{8}	C_{8}	C_{4}	C_{6}	C_{2}
Group 192	C_{4}	C_{17}	C_{12}	C_{3}	C_{8}	C_{3}	C_{5}	C_{13}	C_{2}	C_{5}	C_{8}	C_{13}	C_{17}	C_{6}	C_{6}	C_{2}
Group 193	C_{16}	C_{6}	C_{13}	C_{2}	C_{17}	C_{14}	C_{14}	C_{16}	C_{15}	C_{17}	C_{11}	C_{7}	C_{13}	C_{7}	C_{6}	C_{2}
Group 194	C_{13}	C_{13}	C_{17}	C_{15}	C_{2}	C_{7}	C_{16}	C_{11}	C_{16}	C_{14}	C_{6}	C_{17}	C_{14}	C_{11}	C_{6}	C_{2}
Group 195	C_{3}	C_{8}	C_{2}	C_{13}	C_{3}	C_{12}	C_{17}	C_{17}	C_{8}	C_{4}	C_{12}	C_{5}	C_{6}	C_{13}	C_{6}	C_{2}
Group 196	C_{15}	C_{14}	C_{3}	C_{12}	C_{12}	C_{6}	C_{9}	C_{3}	C_{4}	C_{16}	C_{15}	C_{16}	C_{2}	C_{14}	C_{6}	C_{2}
Group 197	C_{5}	C_{9}	C_{5}	C_{10}	C_{13}	C_{11}	C_{10}	C_{9}	C_{13}	C_{6}	C_{4}	C_{4}	C_{11}	C_{16}	C_{6}	C_{2}
Group 198	C_{8}	C_{14}	C_{7}	C_{15}	C_{10}	C_{10}	C_{2}	C_{6}	C_{15}	C_{5}	C_{4}	C_{14}	C_{4}	C_{8}	C_{7}	C_{2}
Group 199	C_{3}	C_{3}	C_{8}	C_{14}	C_{2}	C_{4}	C_{11}	C_{9}	C_{11}	C_{17}	C_{7}	C_{8}	C_{17}	C_{9}	C_{7}	C_{2}
Group 200	C_{15}	C_{9}	C_{9}	C_{13}	C_{11}	C_{15}	C_{3}	C_{12}	C_{7}	C_{12}	C_{10}	C_{2}	C_{13}	C_{10}	C_{7}	C_{2}
Group 201	C_{10}	C_{15}	C_{10}	C_{12}	C_{3}	C_{9}	C_{12}	C_{15}	C_{3}	C_{7}	C_{13}	C_{13}	C_{9}	C_{11}	C_{7}	C_{2}
Group 202	C_{12}	C_{16}	C_{13}	C_{9}	C_{13}	C_{8}	C_{5}	C_{7}	C_{8}	C_{9}	C_{5}	C_{12}	C_{14}	C_{14}	C_{7}	C_{2}
Group 203	C_{14}	C_{17}	C_{16}	C_{6}	C_{6}	C_{7}	C_{15}	C_{16}	C_{13}	C_{11}	C_{14}	C_{11}	C_{2}	C_{17}	C_{7}	C_{2}
Group 204	C_{15}	C_{4}	C_{15}	C_{14}	C_{10}	C_{7}	C_{14}	C_{4}	C_{10}	C_{8}	C_{5}	C_{5}	C_{7}	C_{6}	C_{8}	C_{2}
Group 205	C_{5}	C_{16}	C_{17}	C_{12}	C_{11}	C_{12}	C_{15}	C_{10}	C_{2}	C_{15}	C_{11}	C_{10}	C_{16}	C_{8}	C_{8}	C_{2}
Group 206	C_{12}	C_{11}	C_{2}	C_{10}	C_{12}	C_{17}	C_{16}	C_{16}	C_{11}	C_{5}	C_{17}	C_{15}	C_{8}	C_{10}	C_{8}	C_{2}

Group 207	C_{14}	C_{12}	C_{5}	C_{7}	C_{5}	C_{16}	C_{9}	C_{8}	C_{16}	C_{7}	C_{9}	C_{14}	C_{13}	C_{13}	C_{8}	C_{2}
Group 208	C_{4}	C_{7}	C_{7}	C_{5}	C_{6}	C_{4}	C_{10}	C_{14}	C_{8}	C_{14}	C_{15}	C_{2}	C_{5}	C_{15}	C_{8}	C_{2}
Group 209	C_{11}	C_{2}	C_{9}	C_{3}	C_{7}	C_{9}	C_{11}	C_{3}	C_{17}	C_{4}	C_{4}	C_{7}	C_{14}	C_{17}	C_{8}	C_{2}
Group 210	C_{14}	C_{7}	C_{11}	C_{8}	C_{4}	C_{8}	C_{3}	C_{17}	C_{2}	C_{3}	C_{4}	C_{17}	C_{7}	C_{9}	C_{9}	C_{2}
Group 211	C_{9}	C_{13}	C_{12}	C_{7}	C_{13}	C_{2}	C_{12}	C_{3}	C_{15}	C_{15}	C_{7}	C_{11}	C_{3}	C_{10}	C_{9}	C_{2}
Group 212	C_{16}	C_{8}	C_{14}	C_{5}	C_{14}	C_{7}	C_{13}	C_{9}	C_{7}	C_{5}	C_{13}	C_{16}	C_{12}	C_{12}	C_{9}	C_{2}
Group 213	C_{6}	C_{3}	C_{16}	C_{3}	C_{15}	C_{12}	C_{14}	C_{15}	C_{16}	C_{12}	C_{2}	C_{4}	C_{4}	C_{14}	C_{9}	C_{2}
Group 214	C_{7}	C_{7}	C_{15}	C_{11}	C_{2}	C_{12}	C_{13}	C_{3}	C_{13}	C_{9}	C_{10}	C_{15}	C_{9}	C_{3}	C_{10}	C_{2}
Group 215	C_{4}	C_{14}	C_{2}	C_{7}	C_{4}	C_{5}	C_{15}	C_{15}	C_{14}	C_{6}	C_{5}	C_{8}	C_{10}	C_{7}	C_{10}	C_{2}
Group 216	C_{11}	C_{9}	C_{4}	C_{5}	C_{5}	C_{10}	C_{16}	C_{4}	C_{6}	C_{13}	C_{11}	C_{13}	C_{2}	C_{9}	C_{10}	C_{2}
Group 217	C_{10}	C_{17}	C_{11}	C_{15}	C_{17}	C_{2}	C_{11}	C_{8}	C_{12}	C_{12}	C_{15}	C_{5}	C_{8}	C_{16}	C_{10}	C_{2}
Group 218	C_{4}	C_{9}	C_{8}	C_{8}	C_{3}	C_{14}	C_{9}	C_{7}	C_{17}	C_{2}	C_{17}	C_{11}	C_{4}	C_{3}	C_{11}	C_{2}
Group 219	C_{6}	C_{10}	C_{11}	C_{5}	C_{13}	C_{13}	C_{2}	C_{16}	C_{5}	C_{4}	C_{9}	C_{10}	C_{9}	C_{6}	C_{11}	C_{2}
Group 220	C_{15}	C_{6}	C_{16}	C_{17}	C_{7}	C_{17}	C_{13}	C_{14}	C_{2}	C_{13}	C_{7}	C_{14}	C_{6}	C_{11}	C_{11}	C_{2}
Group 221	C_{8}	C_{6}	C_{3}	C_{3}	C_{5}	C_{4}	C_{6}	C_{17}	C_{13}	C_{2}	C_{13}	C_{12}	C_{8}	C_{5}	C_{12}	C_{2}
Group 222	C_{5}	C_{13}	C_{7}	C_{16}	C_{7}	C_{14}	C_{8}	C_{12}	C_{14}	C_{16}	C_{8}	C_{5}	C_{9}	C_{9}	C_{12}	C_{2}
Group 223	C_{17}	C_{2}	C_{8}	C_{15}	C_{16}	C_{8}	C_{17}	C_{15}	C_{10}	C_{11}	C_{11}	C_{16}	C_{5}	C_{10}	C_{12}	C_{2}
Group 224	C_{3}	C_{7}	C_{10}	C_{3}	C_{13}	C_{7}	C_{9}	C_{12}	C_{12}	C_{10}	C_{11}	C_{9}	C_{15}	C_{2}	C_{13}	C_{2}
Group 225	C_{7}	C_{9}	C_{16}	C_{14}	C_{16}	C_{5}	C_{12}	C_{13}	C_{5}	C_{14}	C_{12}	C_{7}	C_{8}	C_{8}	C_{13}	C_{2}
Group 226	C_{6}	C_{17}	C_{6}	C_{7}	C_{11}	C_{14}	C_{7}	C_{17}	C_{11}	C_{13}	C_{16}	C_{16}	C_{14}	C_{15}	C_{13}	C_{2}
Group 227	C_{14}	C_{16}	C_{7}	C_{13}	C_{16}	C_{2}	C_{7}	C_{11}	C_{17}	C_{17}	C_{13}	C_{15}	C_{11}	C_{6}	C_{14}	C_{2}
Group 228	C_{9}	C_{5}	C_{8}	C_{12}	C_{8}	C_{13}	C_{16}	C_{14}	C_{13}	C_{12}	C_{16}	C_{9}	C_{7}	C_{7}	C_{14}	C_{2}
Group 229	C_{4}	C_{6}	C_{15}	C_{12}	C_{16}	C_{16}	C_{2}	C_{9}	C_{12}	C_{3}	C_{14}	C_{6}	C_{14}	C_{4}	C_{15}	C_{2}
Group 230	C_{16}	C_{12}	C_{16}	C_{11}	C_{8}	C_{10}	C_{11}	C_{12}	C_{8}	C_{15}	C_{17}	C_{17}	C_{10}	C_{5}	C_{15}	C_{2}
Group 231	C_{12}	C_{10}	C_{10}	C_{17}	C_{5}	C_{12}	C_{8}	C_{11}	C_{15}	C_{11}	C_{16}	C_{2}	C_{17}	C_{16}	C_{15}	C_{2}
Group 232	C_{11}	C_{13}	C_{6}	C_{11}	C_{16}	C_{13}	C_{14}	C_{7}	C_{7}	C_{6}	C_{15}	C_{14}	C_{17}	C_{2}	C_{16}	C_{2}
Group 233	C_{13}	C_{14}	C_{9}	C_{8}	C_{9}	C_{12}	C_{7}	C_{16}	C_{12}	C_{8}	C_{7}	C_{13}	C_{5}	C_{5}	C_{16}	C_{2}
Group 234	C_{17}	C_{10}	C_{7}	C_{16}	C_{5}	C_{13}	C_{5}	C_{15}	C_{4}	C_{17}	C_{15}	C_{13}	C_{4}	C_{7}	C_{3}	C_{3}
Group 235	C_{14}	C_{17}	C_{11}	C_{12}	C_{7}	C_{6}	C_{7}	C_{10}	C_{5}	C_{14}	C_{10}	C_{6}	C_{5}	C_{11}	C_{3}	C_{3}
Group 236	C_{4}	C_{12}	C_{13}	C_{10}	C_{8}	C_{11}	C_{8}	C_{16}	C_{14}	C_{4}	C_{16}	C_{11}	C_{14}	C_{13}	C_{3}	C_{3}
Group 237	C_{11}	C_{7}	C_{15}	C_{8}	C_{9}	C_{16}	C_{9}	C_{5}	C_{6}	C_{11}	C_{5}	C_{16}	C_{6}	C_{15}	C_{3}	C_{3}
Group 238	C_{17}	C_{5}	C_{13}	C_{17}	C_{4}	C_{5}	C_{16}	C_{7}	C_{7}	C_{13}	C_{10}	C_{16}	C_{15}	C_{3}	C_{4}	C_{3}
Group 239	C_{12}	C_{11}	C_{14}	C_{16}	C_{13}	C_{16}	C_{8}	C_{10}	C_{3}	C_{8}	C_{13}	C_{10}	C_{11}	C_{4}	C_{4}	C_{3}
Group 240	C_{7}	C_{17}	C_{15}	C_{15}	C_{5}	C_{10}	C_{17}	C_{13}	C_{16}	C_{3}	C_{16}	C_{4}	C_{7}	C_{5}	C_{4}	C_{3}
Group 241	C_{16}	C_{13}	C_{3}	C_{10}	C_{16}	C_{14}	C_{11}	C_{11}	C_{13}	C_{12}	C_{14}	C_{8}	C_{4}	C_{10}	C_{4}	C_{3}
Group 242	C_{14}	C_{7}	C_{6}	C_{14}	C_{5}	C_{7}	C_{12}	C_{11}	C_{11}	C_{6}	C_{17}	C_{12}	C_{10}	C_{3}	C_{5}	C_{3}
Group 243	C_{11}	C_{14}	C_{10}	C_{10}	C_{7}	C_{17}	C_{14}	C_{6}	C_{12}	C_{3}	C_{12}	C_{5}	C_{11}	C_{7}	C_{5}	C_{3}
Group 244	C_{6}	C_{3}	C_{11}	C_{9}	C_{16}	C_{11}	C_{6}	C_{9}	C_{8}	C_{15}	C_{15}	C_{16}	C_{7}	C_{8}	C_{5}	C_{3}
Group 245	C_{13}	C_{15}	C_{13}	C_{7}	C_{17}	C_{16}	C_{7}	C_{15}	C_{17}	C_{5}	C_{4}	C_{4}	C_{16}	C_{10}	C_{5}	C_{3}
Group 246	C_{15}	C_{16}	C_{16}	C_{4}	C_{10}	C_{15}	C_{17}	C_{7}	C_{5}	C_{7}	C_{13}	C_{3}	C_{4}	C_{13}	C_{5}	C_{3}
Group 247	C_{15}	C_{11}	C_{5}	C_{5}	C_{9}	C_{7}	C_{11}	C_{16}	C_{8}	C_{3}	C_{8}	C_{6}	C_{15}	C_{9}	C_{6}	C_{3}
Group 248	C_{5}	C_{6}	C_{7}	C_{3}	C_{10}	C_{12}	C_{12}	C_{5}	C_{17}	C_{10}	C_{14}	C_{11}	C_{7}	C_{11}	C_{6}	C_{3}
Group 249	C_{7}	C_{7}	C_{10}	C_{17}	C_{3}	C_{11}	C_{5}	C_{14}	C_{5}	C_{12}	C_{6}	C_{10}	C_{12}	C_{14}	C_{6}	C_{3}
Group 250	C_{9}	C_{8}	C_{13}	C_{14}	C_{13}	C_{10}	C_{15}	C_{6}	C_{10}	C_{14}	C_{15}	C_{9}	C_{17}	C_{17}	C_{6}	C_{3}
Group 251	C_{15}	C_{6}	C_{11}	C_{6}	C_{8}	C_{16}	C_{5}	C_{8}	C_{11}	C_{16}	C_{3}	C_{9}	C_{9}	C_{5}	C_{7}	C_{3}
Group 252	C_{16}	C_{15}	C_{4}	C_{13}	C_{13}	C_{7}	C_{10}	C_{4}	C_{5}	C_{17}	C_{16}	C_{17}	C_{3}	C_{15}	C_{7}	C_{3}
Group 253	C_{6}	C_{10}	C_{6}	C_{11}	C_{14}	C_{12}	C_{11}	C_{10}	C_{14}	C_{7}	C_{5}	C_{5}	C_{12}	C_{17}	C_{7}	C_{3}
Group 254	C_{9}	C_{15}	C_{8}	C_{16}	C_{11}	C_{11}	C_{3}	C_{7}	C_{16}	C_{6}	C_{5}	C_{15}	C_{5}	C_{9}	C_{8}	C_{3}
Group 255	C_{16}	C_{10}	C_{10}	C_{14}	C_{12}	C_{16}	C_{4}	C_{13}	C_{8}	C_{13}	C_{11}	C_{3}	C_{14}	C_{11}	C_{8}	C_{3}
Group 256	C_{11}	C_{16}	C_{11}	C_{13}	C_{4}	C_{10}	C_{13}	C_{16}	C_{4}	C_{8}	C_{14}	C_{14}	C_{10}	C_{12}	C_{8}	C_{3}

Sync BTS	C_{13}	C_{17}	C_{14}	C_{10}	C_{14}	C_9	C_6	C_8	C_9	C_{10}	C_6	C_{13}	C_{15}	C_{15}	C_8	C_3