

CR-Formv3
CHANGE REQUEST
⚡ 25.223 CR 17 ⚡ rev - ⚡ Current version: 3.4.0 ⚡

For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⚡ symbols.

Proposed change affects: ⚡ (U)SIM ME/UE Radio Access Network Core Network

Title: ⚡	Inclusion of 1.28Mcps TDD in TS 25.223		
Source: ⚡	Siemens/CWTS/CATT		
Work item code: ⚡	LCRTDD	Date: ⚡	26.02.2001
Category: ⚡	B	Release: ⚡	REL-4
Use <u>one</u> of the following categories: F (essential correction) A (corresponds to a correction in an earlier release) B (Addition of feature), C (Functional modification of feature) D (Editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900.		Use <u>one</u> of the following releases: 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) REL-4 (Release 4) REL-5 (Release 5)	

Reason for change: ⚡	Inclusion of 1.28 Mcps TDD
Summary of change: ⚡	?? The basis for this document was R1-01-0183
Consequences if not approved: ⚡	

Clauses affected: ⚡	New section 6, new section 7.6, new section 9, new Annex B		
Other specs affected:	<input checked="" type="checkbox"/> Other core specifications <input type="checkbox"/> Test specifications <input type="checkbox"/> O&M Specifications	⚡	25.201, 25.221, 25.222, 25.224, 25.225
Other comments: ⚡			

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3 Symbols and abbreviations

3.1 Symbols

For the purposes of the present document, the following symbols apply:

C_p :	PSC
C_i :	i :th secondary SCH code

3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply:

CDMA	Code Division Multiple Access
<u>MIB</u>	<u>Master Information Block</u>
OVSF	Orthogonal Variable Spreading Factor
P-CCPCH	Primary Common Control Physical Channel
PN	Pseudo Noise
PRACH	Physical Random Access Channel
PSC	Primary Synchronisation Code
QPSK	Quadrature Phase Shift Keying
RACH	Random Access Channel
SCH	Synchronisation Channel

4 General

In the following, a separation between the data modulation and the spreading modulation has been made. The data modulation [for 3.84Mcps TDD](#) is defined in clause 5 '[Data modulation for the 3.84 Mcps option](#)', the data modulation [for 1.28Mcps TDD](#) is defined in clause 6 '[Data modulation for the 1.28 Mcps option](#)' and the spreading modulation in clause [67](#) '[Spreading modulation](#)'.

Table 1: Basic modulation parameters

Chip rate	Same as FDD basic chiprate: 3.84 Mchip/s	Low chiprate: 1.28 Mchip/s
Data modulation	QPSK	QPSK, 8PSK
Spreading characteristics	Orthogonal Q chips/symbol, where $Q = 2^p$, $0 \leq p \leq 4$	Orthogonal Q chips/symbol, where $Q = 2^p$, $0 \leq p \leq 4$

5 Data modulation for the 3.84 Mcps option

5.1 Symbol rate

The symbol duration T_s depends on the spreading factor Q and the chip duration T_c : $T_s = Q \cdot T_c$, where $T_c = \frac{1}{\text{chiprate}}$.

6 Data modulation for the 1.28 Mcps option

6.1 Symbol rate

The symbol duration T_s depends on the spreading factor Q and the chip duration T_c : $T_s = Q \cdot T_c$, where $T_c = \frac{1}{\text{chiprate}}$.

6.2 Mapping of bits onto signal point constellation

6.2.1 QPSK modulation

The mapping of bits onto the signal point constellation for QPSK modulation is the same as in the 3.84Mcps TDD cf. [5.2.1 Mapping for burst type 1 and 2].

6.2.2 8PSK modulation

The data modulation is performed to the bits from the output of the physical channel mapping procedure. In case of 8PSK modulation 3 consecutive binary bits are represented by one complex valued data symbol. Each user burst has two data carrying parts, termed data blocks:

$$\underline{d}^{(k,i)} = (d_{1,N_k}^{(k,i)}, d_{2,N_k}^{(k,i)}, \dots, d_{N_k}^{(k,i)})^T \quad i = 1, 2; k = 1, \dots, K. \tag{1}$$

N_k is the number of symbols per data field for the user k . This number is linked to the spreading factor Q_k .

Data block $\underline{d}^{(k,1)}$ is transmitted before the midamble and data block $\underline{d}^{(k,2)}$ after the midamble. Each of the N_k data symbols $d_n^{(k,i)}$; $i=1, 2$; $k=1, \dots, K$; $n=1, \dots, N_k$; of equation 1 has the symbol duration $T_s^{(k)} = Q_k \cdot T_c$ as already given.

The data modulation is 8PSK, thus the data symbols $d_n^{(k,i)}$ are generated from 3 consecutive data bits from the output of the physical channel mapping procedure in [8]:

using the following mapping to complex symbols:

Consecutive binary bit pattern	complex symbol
$b_{1,n}^{(k,i)} \ b_{2,n}^{(k,i)} \ b_{3,n}^{(k,i)}$	$d_n^{(k,i)}$
000	$\cos(11\pi/8) + j\sin(11\pi/8)$
001	$\cos(9\pi/8) + j\sin(9\pi/8)$
010	$\cos(5\pi/8) + j\sin(5\pi/8)$
011	$\cos(7\pi/8) + j\sin(7\pi/8)$
100	$\cos(13\pi/8) + j\sin(13\pi/8)$
101	$\cos(15\pi/8) + j\sin(15\pi/8)$
110	$\cos(3\pi/8) + j\sin(3\pi/8)$
111	$\cos(\pi/8) + j\sin(\pi/8)$

The mapping corresponds to a 8PSK modulation of the interleaved and encoded data bits $b_{l,n}^{(k,i)}$ of the table above and $d_n^{(k,i)}$ of equation 1.

6.7 Spreading modulation

6.7.1 Basic spreading parameters

Spreading of data consists of two operations: Channelisation and Scrambling. Firstly, each complex valued data symbol $d_n^{(k,i)}$ of equation 1 is spread with a real valued channelisation code $c^{(k)}$ of length $Q_k \in \{1, 2, 4, 8, 16\}$. The resulting sequence is then scrambled by a complex sequence s of length 16.

6.7.2 Channelisation codes

The elements $c_q^{(k)}$; $k=1, \dots, K$; $q=1, \dots, Q_k$; of the real valued channelisation codes

$$c^{(k)} = (c_1^{(k)}, c_2^{(k)}, \dots, c_{Q_k}^{(k)}); k=1, \dots, K;$$

shall be taken from the set

$$V_c = \{1, -1\} \tag{3}$$

The $c_{Q_k}^{(k)}$ are Orthogonal Variable Spreading Factor (OVSF) codes, allowing to mix in the same timeslot channels with different spreading factors while preserving the orthogonality. The OVSF codes can be defined using the code tree of figure 1.

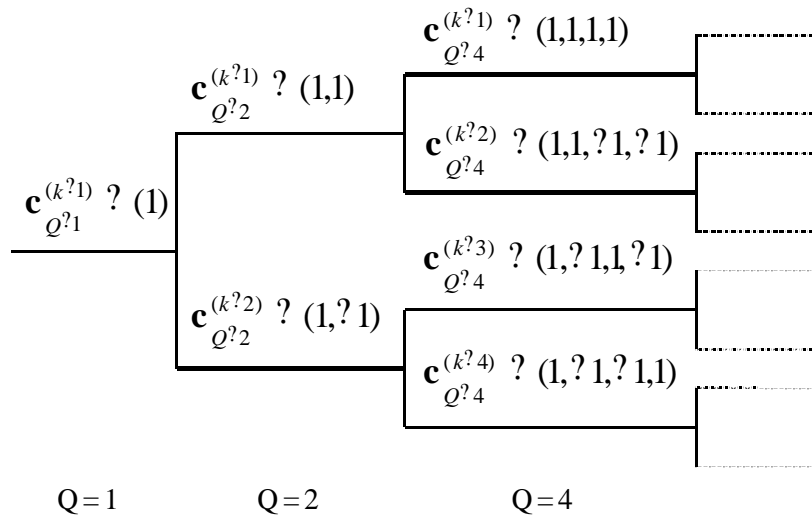


Figure 1: Code-tree for generation of Orthogonal Variable Spreading Factor (OVSF) codes for Channelisation Operation

Each level in the code tree defines a spreading factor indicated by the value of Q in the figure. All codes within the code tree cannot be used simultaneously in a given timeslot. A code can be used in a timeslot if and only if no other code on the path from the specific code to the root of the tree or in the sub-tree below the specific code is used in this timeslot. This means that the number of available codes in a slot is not fixed but depends on the rate and spreading factor of each physical channel.

The spreading factor goes up to $Q_{MAX}=16$.

6.7.3 Scrambling codes

The spreading of data by a real valued channelisation code $c^{(k)}$ of length Q_k is followed by a cell specific complex scrambling sequence $\{z_1, z_2, \dots, z_{16}\}$. The elements $z_i; i = 1, \dots, 16$ of the complex valued scrambling codes shall be taken from the complex set

$$z_j = \{1, j, -1, -j\} \tag{4}$$

In equation 4 the letter j denotes the imaginary unit. A complex scrambling code z is generated from the binary scrambling codes $\{z_1, z_2, \dots, z_{16}\}$ of length 16 shown in Annex A. The relation between the elements z and z_i is given by:

$$z_i = (j)^i z_i \quad z_i = \{1, j\}; i = 1, \dots, 16 \tag{5}$$

Hence, the elements z_i of the complex scrambling code z are alternating real and imaginary.

The length matching is obtained by concatenating Q_{MAX}/Q_k spread words before the scrambling. The scheme is illustrated in figure 2 and is described in more detail in subclause 6.4.

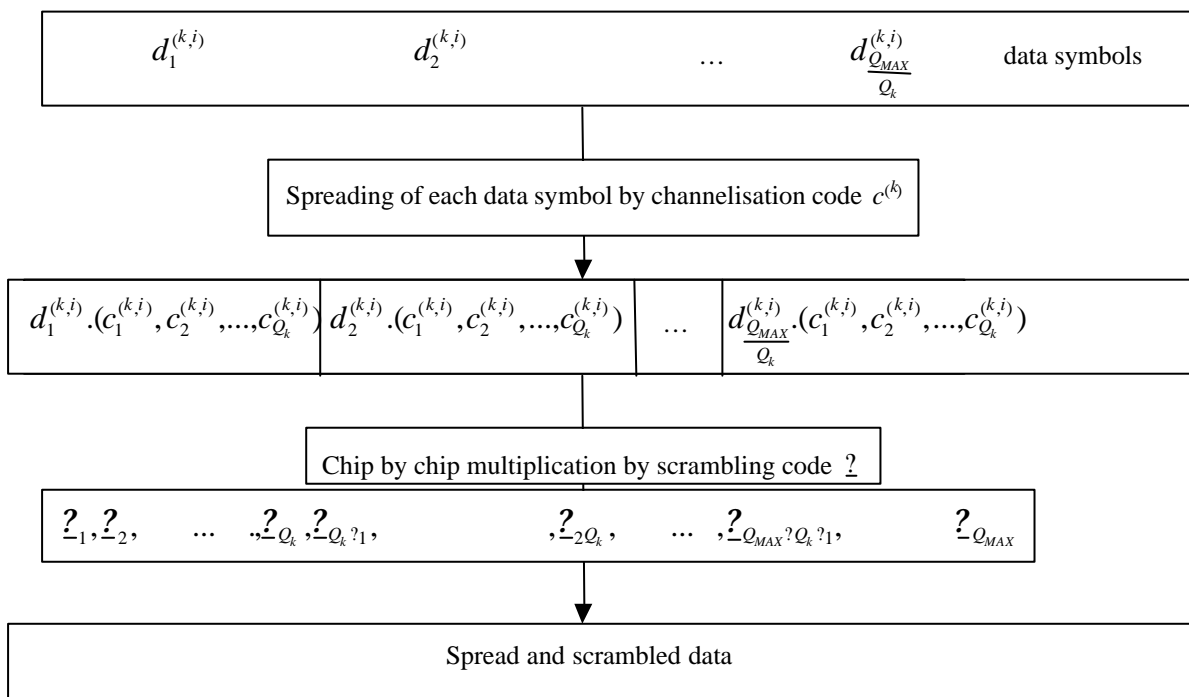


Figure 2: Spreading of data symbols

6.7.4 Spread signal of data symbols and data blocks

The combination of the user specific channelisation and cell specific scrambling codes can be seen as a user and cell specific spreading code $s^{(k)} = \{s_p^{(k)}\}$ with

$$s_p^{(k)} = c^{(k)}_{1 + \lfloor p/2 \rfloor \bmod Q_k} \cdot z_{1 + \lfloor p/2 \rfloor \bmod Q_{MAX}} \quad , k=1, \dots, K, p=1, \dots, N_k Q_k.$$

With the root raised cosine chip impulse filter $Cr_0(t)$ the transmitted signal belonging to the data block $d^{(k,1)}$ of equation 1 transmitted before the midamble is

$$\underline{d}^{(k,1)}(t) = \sum_{n=1}^{N_k} \underline{d}_n^{(k,1)} \sum_{q=1}^{Q_k} s_{(n-1)Q_k+q}^{(k)} c_{r_0}(t - (q-1)T_C - (n-1)Q_kT_C) \tag{6}$$

and for the data block $\underline{d}^{(k,2)}$ of equation 1 transmitted after the midamble

$$\underline{d}^{(k,2)}(t) = \sum_{n=1}^{N_k} \underline{d}_n^{(k,2)} \sum_{q=1}^{Q_k} s_{(n-1)Q_k+q}^{(k)} c_{r_0}(t - (q-1)T_C - (n-1)Q_kT_C - N_kQ_kT_C - L_mT_C). \tag{7}$$

where L_m is the number of midamble chips.

6.57.5 Modulation for the 3.84 Mcps option

The complex-valued chip sequence is QPSK modulated as shown in figure 3.

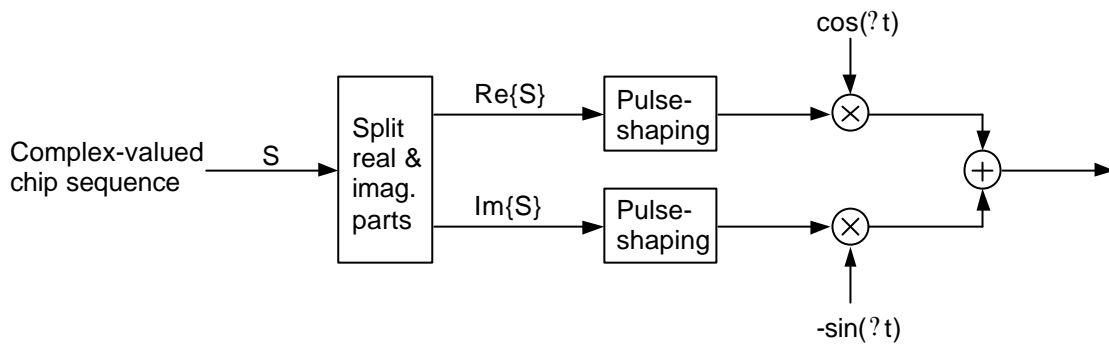


Figure 3: Modulation of complex valued chip sequences

The pulse-shaping characteristics are described in [9] and [10].

6.7.5.1 Combination of physical channels in uplink

Figure 4 illustrates the principle of combination of two different physical uplink channels within one timeslot. The DPCHs to be combined belong to same CCTrCH, did undergo spreading as described in sections before and are thus represented by complex-valued sequences. First, the amplitude of all DPCHs is adjusted according to UL open loop power control as described in [10]. Each DPCH is then separately weighted by a weight factor w_i and combined using complex addition. After combination of Physical Channels the gain factor g_j is applied, depending on the actual TFC as described in [10].

In case of different CCTrCH, principle shown in Figure 4 applies to each CCTrCH separately.

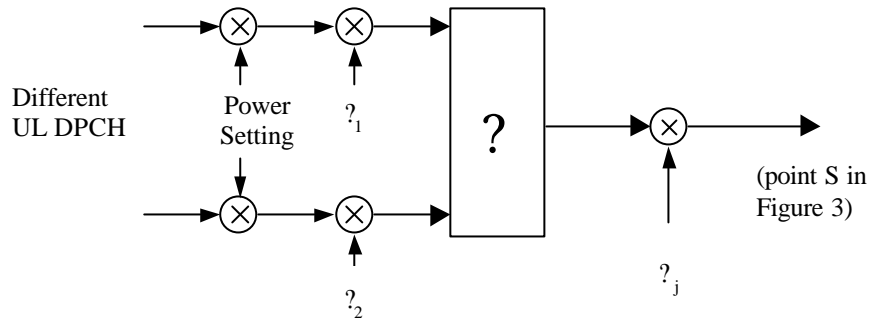


Figure 4: Combination of different physical channels in uplink

The values of weight factors $?_i$ are depending on the spreading factor SF of the corresponding DPCH:

SF of DPCH _i	$?_i$
16	1
8	$\sqrt{2}$
4	2
2	$2\sqrt{2}$
1	4

The possible values for gain factors $?_j$ (corresponding to j -th TFC) are listed in table below:

Signalling value for $?_j$	Quantized value $?_j$
15	16/8
14	15/8
13	14/8
12	13/8
11	12/8
10	11/8
9	10/8
8	9/8
7	8/8
6	7/8
5	6/8
4	5/8
3	4/8
2	3/8
1	2/8
0	1/8

67.5.2 Combination of physical channels in downlink

Figure 5 illustrates how different physical downlink channels are combined within one timeslot. Each complex-valued spread channel is separately weighted by a weight factor G_i . If a timeslot contains the SCH, the complex-valued SCH, as described in [7] is separately weighted by a weight factor G_{SCH} . All downlink physical channels are then combined using complex addition.

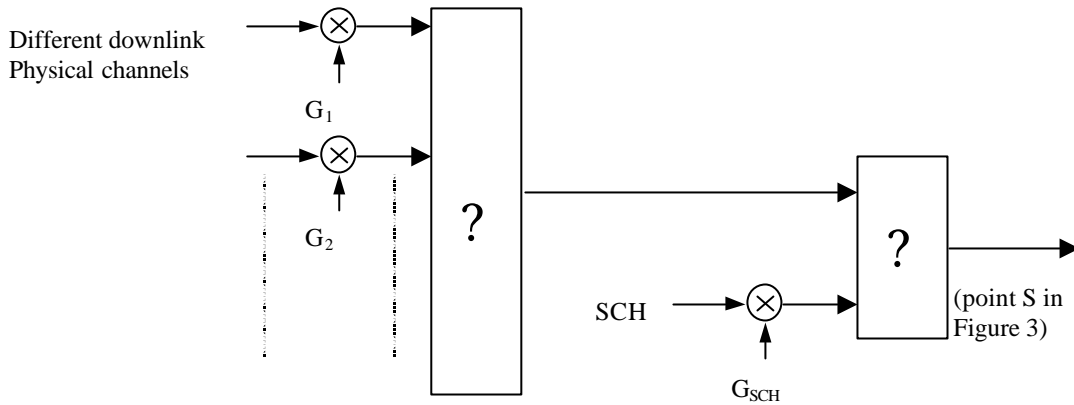


Figure 5: Combination of different physical channels in downlink in case of SCH timeslot

7.6 Modulation for the 1.28 Mcps option

The complex-valued chip sequence is modulated as shown in figure [6].

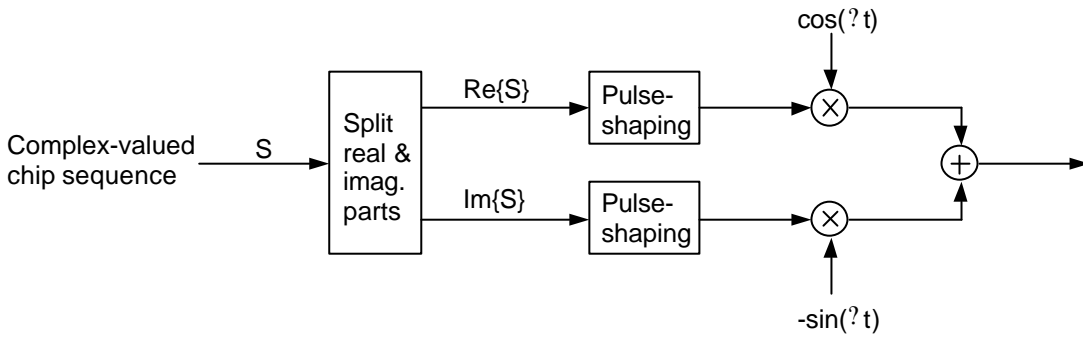


Figure [6]: Modulation of complex valued chip sequences

The pulse-shaping characteristics are described in [9] and [10].

7.6.1 Combination of physical channels in uplink

The combination of physical channels in uplink is the same as in the 3.84 Mcps TDD cf. [7.5.1 Combination of physical channels in uplink]

7.6.2 Combination of physical channels in downlink

Figure 6 illustrates how different physical downlink channels are combined within one timeslot. Each spread channel is separately weighted by a weight factor G_n . All downlink physical channels are then combined using complex addition.

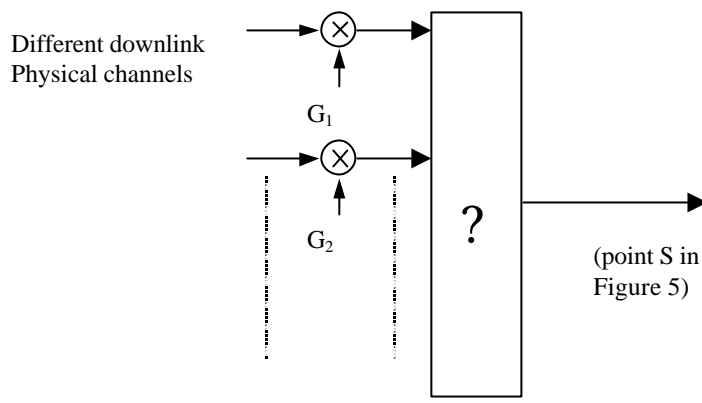


Figure 6. Combination of different physical channels in downlink

78 Synchronisation codes for the 3.84 Mcps option

9 Synchronisation codes for the 1.28 Mcps option

9.1 The downlink pilot timeslot (DwPTS)

The contents of DwPTS is composed of 64 chips of a SYNC-DL sequence, cf. [B.1 Basic SYNC DL sequence] and 32 chips of guard period (GP). The SYNC-DL code is not scrambled

There should be 32 different basic SYNC-DL codes for the whole system.

For the generation of the complex valued SYNC-DL codes of length 64, the basic binary SYNC-DL codes

$s = \{s_1, s_2, \dots, s_{64}\}$ of length 64 shown in Table A are used. The relation between the elements s_i and s_j is given by:

$$s_i = (-1)^i s_j \quad s_j = (-1)^j s_i \quad i=1, \dots, 64 \quad (1)$$

Hence, the elements s_i of the complex SYNC-DL code \underline{s} are alternating real and imaginary.

The SYNC DL is QPSK modulated and the phase of the SYNC-DL is used to signal the presence of the P-CCPCH in the multi-frame of the resource units of code $C_{Q^?16}^{(k?1)}$ and $C_{Q^?16}^{(k?2)}$ in time slot #0.

9.1.1 Modulation of the SYNC-DL

The SYNC DL sequences are modulated with respect to the midamble ($m^{(1)}$) in time slot #0.

Four consecutive phases (phase quadruple) of the SYNC-DL are used to indicate the presence of the P-CCPCH in the following 4 sub-frames. In case the presence of a P-CCPCH is indicated, the next following sub-frame is the first sub-frame of the interleaving period. As QPSK is used for the modulation of the SYNC-DL, the phases 45, 135, 225, and 315° are used.

The total number of different phase quadruples is 2 (S1 and S2). A quadruple always starts with an even system frame number ((SFN mod 2) = 0). Table X is showing the quadruples and their meaning.

Table 8: Sequences for the phase modulation for the SYNC-DL

Name	Phase quadruple	Meaning
S1	135, 45, 225, 135	There is a P-CCPCH in the next 4 sub-frames
S2	315, 225, 315, 45	There is no P-CCPCH in the next 4 sub-frames

9.2 The uplink pilot timeslot (UpPTS)

The contents in UpPTS is composed of 128chips of a SYNC-UL sequence, cf. [B.2 Basic SYNC UL sequence] and 32chips of guard period (GP). The SYNC-UL code is not scrambled.

There should be 256 different basic SYNC-UL codes (see Table B) for the whole system.

For the generation of the complex valued SYNC-UL codes of length 128, the basic binary SYNC-UL codes

$s = \{s_1, s_2, \dots, s_{128}\}$ of length 128 shown in Table B are used. The relation between the elements s_i and s_j is given by:

$$\underline{s}_i = \begin{cases} s_i & i=1, \dots, 64 \\ j s_i & i=65, \dots, 128 \end{cases} \quad (2)$$

Hence, the elements \underline{s}_i of the complex SYNC-UL code \underline{s} are alternating real and imaginary.

9.3 Code Allocation

Relationship between the SYNC-DL and SYNC-UL sequences, the scrambling codes and the midamble codes

Code Group	Associated Codes			
	SYNC-DL ID	SYNC-UL ID	Scrambling Code ID	Basic Midamble Code ID
Group 1	0	0...7	0	0
			1	1
			2	2
			3	3
Group 2	1	8...15	4	4
			5	5
			6	6
			7	7
⋮				
Group 32	31	248...255	124	124
			125	125
			126	126
			127	127

Annex B (Normative) Synchronisation sequence

B.1 Basic SYNC-DL sequence

Table 9: Basic SYNC-DL Codes

<u>Code ID</u>	<u>SYNC-DL Codes of length 64</u>
<u>0</u>	<u>B3A7CC05A98688E4</u>
<u>1</u>	<u>9D559BD290606791</u>
<u>2</u>	<u>2CE7BA12A017C3A2</u>
<u>3</u>	<u>34511D20672F4712</u>
<u>4</u>	<u>9A772841474603F2</u>
<u>5</u>	<u>9109B1A5CE01F228</u>
<u>6</u>	<u>8FD429B3594501C0</u>
<u>7</u>	<u>25251354AA3F8C19</u>
<u>8</u>	<u>C9A3B8E0C043EA56</u>
<u>9</u>	<u>BA04B888E5BC1802</u>
<u>10</u>	<u>A735354299370207</u>
<u>11</u>	<u>74C3C8DA4415AE51</u>
<u>12</u>	<u>F4FD0458A0124663</u>
<u>13</u>	<u>A011D4E16C3D6064</u>
<u>14</u>	<u>BDA0661B0CAA8C68</u>
<u>15</u>	<u>8E31123F28928698</u>
<u>16</u>	<u>F095C1632E2906AB</u>
<u>17</u>	<u>B60B4A8A664071CF</u>
<u>18</u>	<u>AA094DCCE91E041A</u>
<u>19</u>	<u>C0C31CDA8A256807</u>
<u>20</u>	<u>D516964FB18C1890</u>
<u>21</u>	<u>30DE01834F4AACCE</u>
<u>22</u>	<u>8F700323BA5CAD34</u>
<u>23</u>	<u>1B50F4DEE0C1380C</u>
<u>24</u>	<u>443382164F56F2D1</u>
<u>25</u>	<u>E1E4005D49B846B4</u>
<u>26</u>	<u>040A97165330BFAA</u>
<u>27</u>	<u>C48E26881693AD78</u>
<u>28</u>	<u>D4354B2FE02361CC</u>
<u>29</u>	<u>5383AB6C8A10CE84</u>
<u>30</u>	<u>D417A730F2F12244</u>
<u>31</u>	<u>ABF0A0D905A939C4</u>

B.2 Basic SYNC-UL Codes

Table 10: Basic SYNC-UL Codes

<u>Code ID</u>	<u>SYNC-UL Codes of length 128</u>
<u>0</u>	<u>C11C20F0D1807DB8859175B798EC094A</u>
<u>1</u>	<u>91278068081EC8E74543DBC1C9AD4235</u>
<u>2</u>	<u>38F5AEE2E513DB12A663BA04160103E5</u>
<u>3</u>	<u>7AA8A0A210F12A1E4332F2EDD33011FC</u>
<u>4</u>	<u>C180EA3B9BA1774EB9611BD249C4A508</u>
<u>5</u>	<u>B072A2C839489D496B98CE9D0132FBC9</u>
<u>6</u>	<u>B2723EAC6EB01667F2B33961C8074234</u>
<u>7</u>	<u>C4144AD060F0EC095E227B92CF7C8280</u>
<u>8</u>	<u>653036A10D3054146FCF815986C63A14</u>
<u>9</u>	<u>F899CA61435D64DC07FDF04C4A0C053A</u>
<u>10</u>	<u>B56F2D6893A8051407F4C341D88DC7DC</u>
<u>11</u>	<u>DC0BE838242142EDE6413A72C88D74AA</u>
<u>12</u>	<u>22A2FD86E4086C70A4860B13C76E579F</u>
<u>13</u>	<u>A3CBC21322C97D2A02728E7875F39588</u>
<u>14</u>	<u>D4EC4F694A082CB38E3B1558A0FCC89F</u>
<u>15</u>	<u>CC891141C4E216D235C15CF5D3F9B002</u>
<u>16</u>	<u>A1993114C50B77CB0C0725D1E22FD016</u>
<u>17</u>	<u>24F73A979DE52F82E8800CCB93842A59</u>
<u>18</u>	<u>8F878FA04659842E294D8DEAB20BA2FD</u>
<u>19</u>	<u>AC90B0442D70662B028CF76A6BECDF09</u>
<u>20</u>	<u>D94A284DF64D7B0102F0E084C29C88C8</u>
<u>21</u>	<u>8603200C7596F24E865FD3815693358D</u>
<u>22</u>	<u>B466B12CF433642BD8B08F1F452E0550</u>
<u>23</u>	<u>86A3A1772C1C99FCA7DBBA0C312E34A0</u>
<u>24</u>	<u>622A1889F72A9A2C042D46F08EFEE1AC</u>
<u>25</u>	<u>BF220A362BC0D3B0D7CE400954C6CFAE</u>
<u>26</u>	<u>D28D73C52E89CF57905C502244F63616</u>
<u>27</u>	<u>AD4E1C2103697D64D8B9D4C035D90548</u>
<u>28</u>	<u>8F081A9BA12B6C6BD024531AA984D21C</u>
<u>29</u>	<u>E4092429BE82988E1E3585BF6A6AE550</u>
<u>30</u>	<u>08BD36E0A9C061782CB38B35B335CA56</u>
<u>31</u>	<u>1CDFF3CC2685D1C44F4A1059AB03F40A</u>
<u>32</u>	<u>506ED4E88FB1CECE3243F2A27A0221A4</u>
<u>33</u>	<u>846CF58A7AB613C83A24130B5778C0E2</u>
<u>34</u>	<u>A2711A99E26A0C75AC026F4CFAECE893</u>
<u>35</u>	<u>D846EEEBA2432AC05A01043C62579DCF</u>
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<u>37</u>	<u>AA4889A78207674A74E10C6F2BE11D48</u>
<u>38</u>	<u>8534CF8145BC991052814ED5C72709EE</u>
<u>39</u>	<u>01AEF15D2290A84A607425746D9963C7</u>

<u>40</u>	<u>999188F758245D5164FE16D852942C71</u>
<u>41</u>	<u>CF71C008599287E446E30745BD56E2D2</u>
<u>42</u>	<u>248414BA0DF8CDC4711FE7C8707ED0AD</u>
<u>43</u>	<u>EB2E263EC016191C81AB714BFE4D2B30</u>
<u>44</u>	<u>862082A7482FAC1C499793A0D8CED670</u>
<u>45</u>	<u>DE2C22B2783AB75A7342608DE413840A</u>
<u>46</u>	<u>E31AA60B727F2CA2A78DAAC10665011D</u>
<u>47</u>	<u>CEF6CD06509870AC9E0177ACD550921D</u>
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<u>54</u>	<u>A7879F0D31A8982A01EE6AC4952984DC</u>
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<u>56</u>	<u>42F55208EE12909803A7CBEB19B5419E</u>
<u>57</u>	<u>57E5E268A328FCC9ED04B9E5420AC702</u>
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<u>59</u>	<u>98EE1415F026AC0E862C520451697DD0</u>
<u>60</u>	<u>6A0528AEA4B7CD6702660D81F8821E19</u>
<u>61</u>	<u>763D626A87C603BCB09E1A4C800A378F</u>
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<u>63</u>	<u>A6571B3CC2D0E04F017ACC808B92DCE7</u>
<u>64</u>	<u>DDF88B52EA1831D293A803CF23C8C471</u>
<u>65</u>	<u>6CA4D333A2684140475DAB491F61C17A</u>
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<u>68</u>	<u>8694BE3CC1CB36BE2A095F89CC619080</u>
<u>69</u>	<u>9C20334E1BBC596B25E151180BF99940</u>
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<u>72</u>	<u>8858585C3239CBF628033FA0DF189378</u>
<u>73</u>	<u>EFA36404C1BA5118CC5F9052FD28D9C3</u>
<u>74</u>	<u>155609873D8A042D496E6477B747C4F8</u>
<u>75</u>	<u>8446077883A6D7D2549CC9742E3FD023</u>
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<u>80</u>	<u>DA10AFBF2AE61C593A1D88584DE30598</u>
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<u>85</u>	<u>9AA2BE74005A3679C626B209580B8D03</u>
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<u>87</u>	<u>6869C98A8AAD81CAE41A23C83FF9EEA0</u>
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<u>90</u>	<u>9D058E27ED546C10632684BBC84E5BC1</u>
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<u>102</u>	<u>574086183477C4F68540CB7E858263B1</u>
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<u>133</u>	<u>A27DC1A457BC5A56563D8A9B11203615</u>
<u>134</u>	<u>713053A9C0B1B08B14705FF5A7244DB4</u>
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<u>146</u>	<u>9E09481D1881A66F562D8B453BC83AB2</u>
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<u>169</u>	<u>A3902CE0E0B9912591FF28C695728257</u>
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<u>174</u>	<u>CC9E30B8538AD51703EEB6F70801AB22</u>
<u>175</u>	<u>B908AD2F1501DA1C156811736CD798CD</u>
<u>176</u>	<u>2B46302ACCC2F808797FC648A614326D</u>
<u>177</u>	<u>8A54494F1BE27235B8764023AA0FBCFA</u>
<u>178</u>	<u>BC1041E6F636421E89277DC154439103</u>
<u>179</u>	<u>275B39A63029B974E3561AE0A8FC8032</u>
<u>180</u>	<u>9283F6FE819B80492A22B85CE5CE5DC4</u>
<u>181</u>	<u>4CCB52C0CE058A78022C22DF5788CBCC</u>
<u>182</u>	<u>B0DF9608DE549A6F6C581516919A81E6</u>
<u>183</u>	<u>2CA185163CC36060D1E85BB0A7FBB988</u>
<u>184</u>	<u>66101D2846155CAC986FC790D2124EFC</u>
<u>185</u>	<u>8016E3904644D2093579B83BD7AB5071</u>
<u>186</u>	<u>531CAB7085BEC14257439658023647CF</u>
<u>187</u>	<u>DF2910165AA5051E41F6EB198E4D491C</u>
<u>188</u>	<u>BA32052042B0FB2188DE7857DA1B6788</u>
<u>189</u>	<u>9E6D075AFF0EA4153615E140BF380666</u>
<u>190</u>	<u>9ACC5A037902534642A3BE391AA40F9B</u>
<u>191</u>	<u>4D741A3B4499843010D7E5FA8988DC80</u>
<u>192</u>	<u>FA1421C96EDC6092726154560B1C2FC8</u>
<u>193</u>	<u>882946076223CAE0B0BFE3EDA59826D5</u>
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<u>195</u>	<u>BD35A6E00C9528DB38289CF823C34F30</u>
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<u>197</u>	<u>B43EF39A1A64F0E220AF740F9494291B</u>
<u>198</u>	<u>AC537817C2612744A58132A8AFBC44A3</u>
<u>199</u>	<u>98A321249A821DDBF81C38235A371A14</u>
<u>200</u>	<u>AE1D46069090D81BB6B08FED9E687285</u>
<u>201</u>	<u>7EAE2415DC2CD60AE083249A33B56E05</u>
<u>202</u>	<u>3D942AAA9BC9F27289421CE0B301FB98</u>
<u>203</u>	<u>1548BA6D08530727AC6D059C005C6C42</u>
<u>204</u>	<u>FF47C21142C65B502DA70647BAE831D1</u>
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<u>206</u>	<u>E86EDD2EC2DAA3104229EDC43471A16A</u>
<u>207</u>	<u>22FAFB9C184B78B56EE91B6602C03244</u>
<u>208</u>	<u>E45631DC509B1290C08D2C1A1F15DBFE</u>
<u>209</u>	<u>D203C51207092B56568FDAD9E2D44473</u>
<u>210</u>	<u>2AA87F31A7D1AB1C90024F936006C4A5</u>
<u>211</u>	<u>913136153593DEABC7305BF0C5A62180</u>
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<u>213</u>	<u>23C2295213147F324DE8EC1C103BAE88</u>
<u>214</u>	<u>883AF097FCDE82B366A1844245E0D727</u>
<u>215</u>	<u>79E5E9F8C933159ACADC22A06F900A70</u>

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239	64C0CF81F78E8823ECC8661A5295422A
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241	A4CCED356D56BF1B41C28E1504301FE8
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253	ACD889634F79506F2582EA03240F2A07
254	AA65407E1F4A33BF9A62860A3D6A4CC0
255	B1B950AC76A608AA32D04B03C7FF24D3

Annex ~~B~~C (informative):
Generalised Hierarchical Golay Sequences

Annex ~~C~~D (informative):
Change history