**3GPP TSG-CT WG1 Meeting #130-eC1-21aabb**

**Electronic meeting, 20-28 May 2021 was C1-213418**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **24.501** | **CR** | **3330** | **rev** | **1** | **Current version:** | **17.2.1** |  |
|  | | | | | | | | |
| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
|  | | | | | | | | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME | **x** | Radio Access Network |  | Core Network | **x** |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | Correction to Ciphering key data IE | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | MediaTek Inc., Huawei, HiSilicon | | | | | | | | | |
| ***Source to TSG:*** | C1 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | 5GProtoc17 | | | | |  | ***Date:*** | | | 2021-05-24 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***Release:*** | | | Rel-17 |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change 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](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) ... Rel-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | It should be clarified in the definition of the IE that ciphering data set must be marked as applicable for at least one E -UTRA Positioning SIB type or NR Positioning SIB type. Otherwise it can be misunderstood where the minimum length of 34 octets of the IE comes from. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | New NOTE added to clarify that ciphering data set is always applicable for at least one E -UTRA Positioning SIB type or NR Positioning SIB type. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | UE decoding the IE may assume that both E-UTRA posSIB length and the NR posSIB length can have 0 length. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 9.11.3.18C | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | |  | **X** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

#### 9.11.3.18C Ciphering key data

The purpose of the Ciphering key data information element is to transfer a list of ciphering data sets from the network to the UE for deciphering of ciphered assistance data.

The Ciphering key data information element is coded as shown in figure 9.11.3.18C.1, figure 9.11.3.18C.2 and table 9.11.3.18C.1.

The Ciphering key data is a type 6 information element, with a minimum length of 34 octets and a maximum length of 2675 octets. The list can contain a maximum of 16 ciphering data sets.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| Ciphering key data IEI | | | | | | | | octet 1 |
| Length of ciphering key data contents | | | | | | | | octet 2  octet 3 |
| Ciphering data set 1 | | | | | | | | octet 4  octet i |
| Ciphering data set 2 | | | | | | | | octet i+1\*  octet l\* |
| … | | | | | | | | octet l+1\*  octet m\* |
| Ciphering data set p | | | | | | | | octet m+1\*  octet n\* |

Figure 9.11.3.18C.1: Ciphering key data information element

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| Ciphering set ID | | | | | | | | octet 1  octet 2 |
| Ciphering key | | | | | | | | octet 3  octet 18 |
| 0 | 0 | 0 | c0 length | | | | | octet 19 |
| Spare | | |
| c0 | | | | | | | | octet 20  octet k |
| 0 | 0 | 0 | 0 | E-UTRA posSIB length | | | | octet k+1 |
| Spare | | | |  |
| PosSIBType1-1 | PosSIBType1-2 | PosSIBType1-3 | PosSIBType1-4 | PosSIBType1-5 | PosSIBType1-6 | PosSIBType1-7 | PosSIBType1-8 | octet k+2  octet k+3 |
| PosSIBType2-1 | PosSIBType2-2 | PosSIBType2-3 | PosSIBType2-4 | PosSIBType2-5 | PosSIBType2-6 | PosSIBType2-7 | PosSIBType2-8 |
| PosSIBType2-9 | PosSIBType2-10 | PosSIBType2-11 | PosSIBType2-12 | PosSIBType2-13 | PosSIBType2-14 | PosSIBType2-15 | PosSIBType2-16 |
| PosSIBType2-17 | PosSIBType2-18 | PosSIBType2-19 | PosSIBType2-20 | PosSIBType2-21 | PosSIBType2-22 | PosSIBType2-23 | PosSIBType2-24 |
| PosSIBType2-25 | PosSIBType3-1 | PosSIBType4-1 | PosSIBType5-1 | 0  Spare | 0  Spare | 0  Spare | 0  Spare | octet p |
| 0 | 0 | 0 | 0 | NR posSIB length | | | | octet p+1 |
| Spare | | | |  |
| PosSIBType1-1 | PosSIBType1-2 | PosSIBType1-3 | PosSIBType1-4 | PosSIBType1-5 | PosSIBType1-6 | PosSIBType1-7 | PosSIBType1-8 | octet p+2  octet p+3  octet q |
| PosSIBType2-1 | PosSIBType2-2 | PosSIBType2-3 | PosSIBType2-4 | PosSIBType2-5 | PosSIBType2-6 | PosSIBType2-7 | PosSIBType2-8 |
| PosSIBType2-9 | PosSIBType2-10 | PosSIBType2-11 | PosSIBType2-12 | PosSIBType2-13 | PosSIBType2-14 | PosSIBType2-15 | PosSIBType2-16 |
| PosSIBType2-17 | PosSIBType2-18 | PosSIBType2-19 | PosSIBType2-20 | PosSIBType2-21 | PosSIBType2-22 | PosSIBType2-23 | PosSIBType3-1 |
| PosSIBType4-1 | PosSIBType5-1 | PosSIBType6-1 | PosSIBType6-2 | PosSIBType6-3 | 0  Spare | 0  Spare | 0  Spare |
| Validity start time | | | | | | | | octet q+1  octe q+5 |
| Validity duration | | | | | | | | octet q+6  octet q+7 |
| TAIs list | | | | | | | | octet q+8  octet r |

Figure 9.11.3.18C.2: Ciphering data set

Table 9.11.3.18C.1: Ciphering key data information element

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Value part of the Ciphering key data information element (octets 4 to n) | | | | | | | | | | |
|  | | | | | | | | | | |
| The value part of the Ciphering key data information element consists of one or several ciphering data sets. | | | | | | | | | | |
| The UE shall store the complete list received. If more than 16 ciphering data sets are included in this information element, the UE shall store the first 16 ciphering data sets and ignore the remaining octets of the information element. | | | | | | | | | | |
|  | | | | | | | | | | |
|  | | | | | | | | | | |
| Ciphering data set: | | | | | | | | | | |
|  | | | | | | | | | | |
| Ciphering set ID (octets 1 to 2) | | | | | | | | | | |
|  | | | | | | | | | | |
| This field contains the binary encoding of the ID identifying the ciphering set. | | | | | | | | | | |
|  | | | | | | | | | | |
| Ciphering key (octets 3 to octet 18) | | | | | | | | | | |
|  | | | | | | | | | | |
| This field contains the 128 bit ciphering key. | | | | | | | | | | |
|  | | | | | | | | | | |
| c0 length (octet 19, bits 5 to 1)  This field contains the binary encoding of the length, in octets, of the c0 counter. The maximum value for the length of the c0 counter is 16 octets. | | | | | | | | | | |
|  | | | | | | | | | | |
| Bits 8 to 6 of octect 19 are spare and shall be coded as zero. | | | | | | | | | | |
|  | | | | | | | | | | |
|  | | | | | | | | | | |
| c0 (octets 20 to k) | | | | | | | | | | |
|  | | | | | | | | | | |
| This field contains the binary encoding of the c0 counter. | | | | | | | | | | |
|  | | | | | | | | | | |
|  | | | | | | | | | | |
| E-UTRA posSIB length (octet k+1, bits 4 to 1)  This field contains the length in octets of the E -UTRA Positioning SIB types. A length of zero means E -UTRA Positioning SIB types are not included (see NOTE).  E-UTRA Positioning SIB types for which the ciphering data set is applicable (octets k+2 to p). Unassigned bits shall be ignored by a UE. Non-included bits shall be assumed to be zero by a UE. | | | | | | | | | | |
|  | | | | | | | | | | |
| Ciphering data set applicable for positioning SIB type 1-1 (octet k+2, bit 8) | | | | | | | | | | | |
| 0 | | | |  | |  | |  | | Ciphering data set not applicable to positioning SIB type 1-1 | |
| 1 | | | |  | |  | |  | | Ciphering data set applicable to positioning SIB type 1-1 | |
|  | | | | | | | | | | | |
| Ciphering data set applicable for positioning SIB type 1-2 (octet k+2, bit 7) | | | | | | | | | | | |
| 0 | | | |  | |  | |  | | Ciphering data set not applicable to positioning SIB type 1-2 | |
| 1 | | | |  | |  | |  | | Ciphering data set applicable to positioning SIB type 1-2 | |
|  | | | | | | | | | | | |
| Ciphering data set applicable for positioning SIB type 1-3 (octet k+2, bit 6) | | | | | | | | | | | |
| 0 | | | |  | |  | |  | | Ciphering data set not applicable to positioning SIB type 1-3 | |
| 1 | | | |  | |  | |  | | Ciphering data set applicable to positioning SIB type 1-3 | |
|  | | | | | | | | | | | |
| Ciphering data set applicable for positioning SIB type 1-4 (octet k+2, bit 5) | | | | | | | | | | | |
| 0 | | | |  | |  | |  | | Ciphering data set not applicable to positioning SIB type 1-4 | |
| 1 | | | |  | |  | |  | | Ciphering data set applicable to positioning SIB type 1-4 | |
|  | | | | | | | | | | | |
| Ciphering data set applicable for positioning SIB type 1-5 (octet k+2, bit 4) | | | | | | | | | | | |
| 0 | | | |  | |  | |  | | Ciphering data set not applicable to positioning SIB type 1-5 | |
| 1 | | | |  | |  | |  | | Ciphering data set applicable to positioning SIB type 1-5 | |
|  | | | | | | | | | | | |
| Ciphering data set applicable for positioning SIB type 1-6 (octet k+2, bit 3) | | | | | | | | | | | |
| 0 | | | |  | |  | |  | | Ciphering data set not applicable to positioning SIB type 1-6 | |
| 1 | | | |  | |  | |  | | Ciphering data set applicable to positioning SIB type 1-6 | |
|  | | | | | | | | | | | |
| Ciphering data set applicable for positioning SIB type 1-7 (octet k+2, bit 2) | | | | | | | | | | | |
| 0 | | | |  | |  | |  | | Ciphering data set not applicable to positioning SIB type 1-7 | |
| 1 | | | |  | |  | |  | | Ciphering data set applicable to positioning SIB type 1-7 | |
|  | | | | | | | | | | | |
| Ciphering data set applicable for positioning SIB type 1-8 (octet k+2, bit 1) | | | | | | | | | | | |
| 0 | | | |  | |  | |  | | Ciphering data set not applicable to positioning SIB type 1-8 | |
| 1 | | | |  | |  | |  | | Ciphering data set applicable to positioning SIB type 1-8 | |
|  | | | | | | | | | | | |
|  | | | | | | | | | | |
| Ciphering data set applicable for positioning SIB type 2-1 (octet k+3, bit 8) | | | | | | | | | | | |
| 0 | | | |  | |  | |  | | Ciphering data set not applicable to positioning SIB type 2-1 | |
| 1 | | | |  | |  | |  | | Ciphering data set applicable to positioning SIB type 2-1 | |
|  | | | | | | | | | | | |
| Ciphering data set applicable for positioning SIB type 2-2 (octet k+3, bit 7) | | | | | | | | | | | |
| 0 | | | |  | |  | |  | | Ciphering data set not applicable to positioning SIB type 2-2 | |
| 1 | | | |  | |  | |  | | Ciphering data set applicable to positioning SIB type 2-2 | |
|  | | | | | | | | | | | |
| Ciphering data set applicable for positioning SIB type 2-3 (octet k+3, bit 6) | | | | | | | | | | | |
| 0 | | | |  | |  | |  | | Ciphering data set not applicable to positioning SIB type 2-3 | |
| 1 | | | |  | |  | |  | | Ciphering data set applicable to positioning SIB type 2-3 | |
|  | | | | | | | | | | | |
| Ciphering data set applicable for positioning SIB type 2-4 (octet k+3, bit 5) | | | | | | | | | | | |
| 0 | | | |  | |  | |  | | Ciphering data set not applicable to positioning SIB type 2-4 | |
| 1 | | | |  | |  | |  | | Ciphering data set applicable to positioning SIB type 2-4 | |
|  | | | | | | | | | | | |
| Ciphering data set applicable for positioning SIB type 2-5 (octet k+3, bit 4) | | | | | | | | | | | |
| 0 | | | |  | |  | |  | | Ciphering data set not applicable to positioning SIB type 2-5 | |
| 1 | | | |  | |  | |  | | Ciphering data set applicable to positioning SIB type 2-5 | |
|  | | | | | | | | | | | |
| Ciphering data set applicable for positioning SIB type 2-6 (octet k+3, bit 3) | | | | | | | | | | | |
| 0 | | | |  | |  | |  | | Ciphering data set not applicable to positioning SIB type 2-6 | |
| 1 | | | |  | |  | |  | | Ciphering data set applicable to positioning SIB type 2-6 | |
|  | | | | | | | | | | | |
| Ciphering data set applicable for positioning SIB type 2-7 (octet k+3, bit 2) | | | | | | | | | | | |
| 0 | | | |  | |  | |  | | Ciphering data set not applicable to positioning SIB type 2-7 | |
| 1 | | | |  | |  | |  | | Ciphering data set applicable to positioning SIB type 2-7 | |
|  | | | | | | | | | | | |
| Ciphering data set applicable for positioning SIB type 2-8 (octet k+3, bit 1) | | | | | | | | | | | |
| 0 | | | |  | |  | |  | | Ciphering data set not applicable to positioning SIB type 2-8 | |
| 1 | | | |  | |  | |  | | Ciphering data set applicable to positioning SIB type 2-8 | |
|  | | | | | | | | | | | |
| Ciphering data set applicable for positioning SIB type 2-9 (octet k+4, bit 8) | | | | | | | | | | | |
| 0 | | | |  | |  | |  | | Ciphering data set not applicable to positioning SIB type 2-9 | |
| 1 | | | |  | |  | |  | | Ciphering data set applicable to positioning SIB type 2-9 | |
|  | | | | | | | | | | | |
| Ciphering data set applicable for positioning SIB type 2-10 (octet k+4, bit 7) | | | | | | | | | | | |
| 0 | | | |  | |  | |  | | Ciphering data set not applicable to positioning SIB type 2-10 | |
| 1 | | | |  | |  | |  | | Ciphering data set applicable to positioning SIB type 2-10 | |
|  | | | | | | | | | | | |
| Ciphering data set applicable for positioning SIB type 2-11 (octet k+4, bit 6) | | | | | | | | | | | |
| 0 | | | |  | |  | |  | | Ciphering data set not applicable to positioning SIB type 2-11 | |
| 1 | | | |  | |  | |  | | Ciphering data set applicable to positioning SIB type 2-11 | |
|  | | | | | | | | | | | |
| Ciphering data set applicable for positioning SIB type 2-12 (octet k+4, bit 5) | | | | | | | | | | | |
| 0 | | | |  | |  | |  | | Ciphering data set not applicable to positioning SIB type 2-12 | |
| 1 | | | |  | |  | |  | | Ciphering data set applicable to positioning SIB type 2-12 | |
|  | | | | | | | | | | | |
| Ciphering data set applicable for positioning SIB type 2-13 (octet k+4, bit 4) | | | | | | | | | | | |
| 0 | | | |  | |  | |  | | Ciphering data set not applicable to positioning SIB type 2-13 | |
| 1 | | | |  | |  | |  | | Ciphering data set applicable to positioning SIB type 2-13 | |
|  | | | | | | | | | | | |
| Ciphering data set applicable for positioning SIB type 2-14 (octet k+4, bit 3) | | | | | | | | | | | |
| 0 | | | |  | |  | |  | | Ciphering data set not applicable to positioning SIB type 2-14 | |
| 1 | | | |  | |  | |  | | Ciphering data set applicable to positioning SIB type 2-14 | |
|  | | | | | | | | | | | |
| Ciphering data set applicable for positioning SIB type 2-15 (octet k+4, bit 2) | | | | | | | | | | | |
| 0 | | | |  | |  | |  | | Ciphering data set not applicable to positioning SIB type 2-15 | |
| 1 | | | |  | |  | |  | | Ciphering data set applicable to positioning SIB type 2-15 | |
|  | | | | | | | | | | | |
| Ciphering data set applicable for positioning SIB type 2-16 (octet k+4, bit 1) | | | | | | | | | | | |
| 0 | | | |  | |  | |  | | Ciphering data set not applicable to positioning SIB type 2-16 | |
| 1 | | | |  | |  | |  | | Ciphering data set applicable to positioning SIB type 2-16 | |
|  | | | | | | | | | | | |
| Ciphering data set applicable for positioning SIB type 2-17 (octet k+5, bit 8) | | | | | | | | | | | |
| 0 | | | |  | |  | |  | | Ciphering data set not applicable to positioning SIB type 2-17 | |
| 1 | | | |  | |  | |  | | Ciphering data set applicable to positioning SIB type 2-17 | |
|  | | | | | | | | | | | |
| Ciphering data set applicable for positioning SIB type 2-18 (octet k+5, bit 7) | | | | | | | | | | | |
| 0 | | | |  | |  | |  | | Ciphering data set not applicable to positioning SIB type 2-18 | |
| 1 | | | |  | |  | |  | | Ciphering data set applicable to positioning SIB type 2-18 | |
|  | | | | | | | | | | | |
| Ciphering data set applicable for positioning SIB type 2-19 (octet k+5, bit 6) | | | | | | | | | | | |
| 0 | | | |  | |  | |  | | Ciphering data set not applicable to positioning SIB type 2-19 | |
| 1 | | | |  | |  | |  | | Ciphering data set applicable to positioning SIB type 2-19 | |
|  | | | | | | | | | | | |
| Ciphering data set applicable for positioning SIB type 2-20 (octet k+5, bit 5) | | | | | | | | | | | |
| 0 | | | |  | |  | |  | | Ciphering data set not applicable to positioning SIB type 2-20 | |
| 1 | | | |  | |  | |  | | Ciphering data set applicable to positioning SIB type 2-20 | |
|  | | | | | | | | | | | |
| Ciphering data set applicable for positioning SIB type 2-21 (octet k+5, bit 4) | | | | | | | | | | | |
| 0 | | | |  | |  | |  | | Ciphering data set not applicable to positioning SIB type 2-21 | |
| 1 | | | |  | |  | |  | | Ciphering data set applicable to positioning SIB type 2-21 | |
|  | | | | | | | | | | | |
| Ciphering data set applicable for positioning SIB type 2-22 (octet k+5, bit 3) | | | | | | | | | | | |
| 0 | | | |  | |  | |  | | Ciphering data set not applicable to positioning SIB type 2-22 | |
| 1 | | | |  | |  | |  | | Ciphering data set applicable to positioning SIB type 2-22 | |
|  | | | | | | | | | | | |
| Ciphering data set applicable for positioning SIB type 2-23 (octet k+5, bit 2) | | | | | | | | | | | |
| 0 | | | |  | |  | |  | | Ciphering data set not applicable to positioning SIB type 2-23 | |
| 1 | | | |  | |  | |  | | Ciphering data set applicable to positioning SIB type 2-23 | |
|  | | | | | | | | | | | |
| Ciphering data set applicable for positioning SIB type 2-24 (octet k+5, bit 1) | | | | | | | | | | | |
| 0 | | |  | |  | |  | | Ciphering data set not applicable to positioning SIB type 2-24 | | |
| 1 | | |  | |  | |  | | Ciphering data set applicable to positioning SIB type 2-24 | | |
|  | | | | | | | | | | | |
| Ciphering data set applicable for positioning SIB type 2-25 (octet k+6, bit 8) | | | | | | | | | | | |
| 0 | | |  | |  | |  | | Ciphering data set not applicable to positioning SIB type 2-25 | | |
| 1 | | |  | |  | |  | | Ciphering data set applicable to positioning SIB type 2-25 | | |
|  | | | | | | | | | | | |
| Ciphering data set applicable for positioning SIB type 3-1 (octet k+6, bit 7) | | | | | | | | | | | |
| 0 | | | |  | |  | |  | | Ciphering data set not applicable to positioning SIB type 3-1 | |
| 1 | | | |  | |  | |  | | Ciphering data set applicable to positioning SIB type 3-1 | |
|  | | | | | | | | | | | |
| Ciphering data set applicable for positioning SIB type 4-1 (octet k+6, bit 6) | | | | | | | | | | | |
| 0 | | |  | |  | |  | | Ciphering data set not applicable to positioning SIB type 4-1 | | |
| 1 | | |  | |  | |  | | Ciphering data set applicable to positioning SIB type 4-1 | | |
|  | | | | | | | | | | | |
| Ciphering data set applicable for positioning SIB type 5-1 (octet k+6, bit 5) | | | | | | | | | | | |
| 0 | | |  | |  | |  | | Ciphering data set not applicable to positioning SIB type 5-1 | | |
| 1 | | |  | |  | |  | | Ciphering data set applicable to positioning SIB type 5-1 | | |
|  | | | | | | | | | | | |
| Any unassigned bits shall be coded as zero. | | | | | | | | | | |
|  | | | | | | | | | | |
|  | | | | | | | | | | |
| NR posSIB length (octet p+1, bits 4 to 1)  This field contains the length in octets of the NR Positioning SIB types. A length of zero means NR Positioning SIB types are not included (see NOTE).  NR Positioning SIB types for which the ciphering data set is applicable (octets p+2 to q). Unassigned bits shall be ignored. Non-included bits shall be assumed to be zero. | | | | | | | | | | |
|  | | | | | | | | | | |
| Ciphering data set applicable for positioning SIB type 1-1 (octet p+2, bit 8) | | | | | | | | | | | |
| 0 | | | |  | |  | |  | | Ciphering data set not applicable to positioning SIB type 1-1 | |
| 1 | | | |  | |  | |  | | Ciphering data set applicable to positioning SIB type 1-1 | |
|  | | | | | | | | | | | |
| Ciphering data set applicable for positioning SIB type 1-2 (octet p+2, bit 7) | | | | | | | | | | | |
| 0 | | | |  | |  | |  | | Ciphering data set not applicable to positioning SIB type 1-2 | |
| 1 | | | |  | |  | |  | | Ciphering data set applicable to positioning SIB type 1-2 | |
|  | | | | | | | | | | | |
| Ciphering data set applicable for positioning SIB type 1-3 (octet p+2, bit 6) | | | | | | | | | | | |
| 0 | | | |  | |  | |  | | Ciphering data set not applicable to positioning SIB type 1-3 | |
| 1 | | | |  | |  | |  | | Ciphering data set applicable to positioning SIB type 1-3 | |
|  | | | | | | | | | | | |
| Ciphering data set applicable for positioning SIB type 1-4 (octet p+2, bit 5) | | | | | | | | | | | |
| 0 | | | |  | |  | |  | | Ciphering data set not applicable to positioning SIB type 1-4 | |
| 1 | | | |  | |  | |  | | Ciphering data set applicable to positioning SIB type 1-4 | |
|  | | | | | | | | | | | |
| Ciphering data set applicable for positioning SIB type 1-5 (octet p+2, bit 4) | | | | | | | | | | | |
| 0 | | | |  | |  | |  | | Ciphering data set not applicable to positioning SIB type 1-5 | |
| 1 | | | |  | |  | |  | | Ciphering data set applicable to positioning SIB type 1-5 | |
|  | | | | | | | | | | | |
| Ciphering data set applicable for positioning SIB type 1-6 (octet p+2, bit 3) | | | | | | | | | | | |
| 0 | | | |  | |  | |  | | Ciphering data set not applicable to positioning SIB type 1-6 | |
| 1 | | | |  | |  | |  | | Ciphering data set applicable to positioning SIB type 1-6 | |
|  | | | | | | | | | | | |
| Ciphering data set applicable for positioning SIB type 1-7 (octet p+2, bit 2) | | | | | | | | | | | |
| 0 | | | |  | |  | |  | | Ciphering data set not applicable to positioning SIB type 1-7 | |
| 1 | | | |  | |  | |  | | Ciphering data set applicable to positioning SIB type 1-7 | |
|  | | | | | | | | | | | |
| Ciphering data set applicable for positioning SIB type 1-8 (octet p+2, bit 1) | | | | | | | | | | | |
| 0 | | | |  | |  | |  | | Ciphering data set not applicable to positioning SIB type 1-8 | |
| 1 | | | |  | |  | |  | | Ciphering data set applicable to positioning SIB type 1-8 | |
|  | | | | | | | | | | | |
|  | | | | | | | | | | |
| Ciphering data set applicable for positioning SIB type 2-1 (octet p+3, bit 8) | | | | | | | | | | | |
| 0 | | | |  | |  | |  | | Ciphering data set not applicable to positioning SIB type 2-1 | |
| 1 | | | |  | |  | |  | | Ciphering data set applicable to positioning SIB type 2-1 | |
|  | | | | | | | | | | | |
| Ciphering data set applicable for positioning SIB type 2-2 (octet p+3, bit 7) | | | | | | | | | | | |
| 0 | | | |  | |  | |  | | Ciphering data set not applicable to positioning SIB type 2-2 | |
| 1 | | | |  | |  | |  | | Ciphering data set applicable to positioning SIB type 2-2 | |
|  | | | | | | | | | | | |
| Ciphering data set applicable for positioning SIB type 2-3 (octet p+3, bit 6) | | | | | | | | | | | |
| 0 | | | |  | |  | |  | | Ciphering data set not applicable to positioning SIB type 2-3 | |
| 1 | | | |  | |  | |  | | Ciphering data set applicable to positioning SIB type 2-3 | |
|  | | | | | | | | | | | |
| Ciphering data set applicable for positioning SIB type 2-4 (octet p+3, bit 5) | | | | | | | | | | | |
| 0 | | | |  | |  | |  | | Ciphering data set not applicable to positioning SIB type 2-4 | |
| 1 | | | |  | |  | |  | | Ciphering data set applicable to positioning SIB type 2-4 | |
|  | | | | | | | | | | | |
| Ciphering data set applicable for positioning SIB type 2-5 (octet p+3, bit 4) | | | | | | | | | | | |
| 0 | | | |  | |  | |  | | Ciphering data set not applicable to positioning SIB type 2-5 | |
| 1 | | | |  | |  | |  | | Ciphering data set applicable to positioning SIB type 2-5 | |
|  | | | | | | | | | | | |
| Ciphering data set applicable for positioning SIB type 2-6 (octet p+3, bit 3) | | | | | | | | | | | |
| 0 | | | |  | |  | |  | | Ciphering data set not applicable to positioning SIB type 2-6 | |
| 1 | | | |  | |  | |  | | Ciphering data set applicable to positioning SIB type 2-6 | |
|  | | | | | | | | | | | |
| Ciphering data set applicable for positioning SIB type 2-7 (octet p+3, bit 2) | | | | | | | | | | | |
| 0 | | | |  | |  | |  | | Ciphering data set not applicable to positioning SIB type 2-7 | |
| 1 | | | |  | |  | |  | | Ciphering data set applicable to positioning SIB type 2-7 | |
|  | | | | | | | | | | | |
| Ciphering data set applicable for positioning SIB type 2-8 (octet p+3, bit 1) | | | | | | | | | | | |
| 0 | | | |  | |  | |  | | Ciphering data set not applicable to positioning SIB type 2-8 | |
| 1 | | | |  | |  | |  | | Ciphering data set applicable to positioning SIB type 2-8 | |
|  | | | | | | | | | | | |
| Ciphering data set applicable for positioning SIB type 2-9 (octet p+4, bit 8) | | | | | | | | | | | |
| 0 | | | |  | |  | |  | | Ciphering data set not applicable to positioning SIB type 2-9 | |
| 1 | | | |  | |  | |  | | Ciphering data set applicable to positioning SIB type 2-9 | |
|  | | | | | | | | | | | |
| Ciphering data set applicable for positioning SIB type 2-10 (octet p+4, bit 7) | | | | | | | | | | | |
| 0 | | | |  | |  | |  | | Ciphering data set not applicable to positioning SIB type 2-10 | |
| 1 | | | |  | |  | |  | | Ciphering data set applicable to positioning SIB type 2-10 | |
|  | | | | | | | | | | | |
| Ciphering data set applicable for positioning SIB type 2-11 (octet p+4, bit 6) | | | | | | | | | | | |
| 0 | | | |  | |  | |  | | Ciphering data set not applicable to positioning SIB type 2-11 | |
| 1 | | | |  | |  | |  | | Ciphering data set applicable to positioning SIB type 2-11 | |
|  | | | | | | | | | | | |
| Ciphering data set applicable for positioning SIB type 2-12 (octet p+4, bit 5) | | | | | | | | | | | |
| 0 | | | |  | |  | |  | | Ciphering data set not applicable to positioning SIB type 2-12 | |
| 1 | | | |  | |  | |  | | Ciphering data set applicable to positioning SIB type 2-12 | |
|  | | | | | | | | | | | |
| Ciphering data set applicable for positioning SIB type 2-13 (octet p+4, bit 4) | | | | | | | | | | | |
| 0 | | | |  | |  | |  | | Ciphering data set not applicable to positioning SIB type 2-13 | |
| 1 | | | |  | |  | |  | | Ciphering data set applicable to positioning SIB type 2-13 | |
|  | | | | | | | | | | | |
| Ciphering data set applicable for positioning SIB type 2-14 (octet p+4, bit 3) | | | | | | | | | | | |
| 0 | | | |  | |  | |  | | Ciphering data set not applicable to positioning SIB type 2-14 | |
| 1 | | | |  | |  | |  | | Ciphering data set applicable to positioning SIB type 2-14 | |
|  | | | | | | | | | | | |
| Ciphering data set applicable for positioning SIB type 2-15 (octet p+4, bit 2) | | | | | | | | | | | |
| 0 | | | |  | |  | |  | | Ciphering data set not applicable to positioning SIB type 2-15 | |
| 1 | | | |  | |  | |  | | Ciphering data set applicable to positioning SIB type 2-15 | |
|  | | | | | | | | | | | |
| Ciphering data set applicable for positioning SIB type 2-16 (octet p+4, bit 1) | | | | | | | | | | | |
| 0 | | | |  | |  | |  | | Ciphering data set not applicable to positioning SIB type 2-16 | |
| 1 | | | |  | |  | |  | | Ciphering data set applicable to positioning SIB type 2-16 | |
|  | | | | | | | | | | | |
| Ciphering data set applicable for positioning SIB type 2-17 (octet p+5, bit 8) | | | | | | | | | | | |
| 0 | | | |  | |  | |  | | Ciphering data set not applicable to positioning SIB type 2-17 | |
| 1 | | | |  | |  | |  | | Ciphering data set applicable to positioning SIB type 2-17 | |
|  | | | | | | | | | | | |
| Ciphering data set applicable for positioning SIB type 2-18 (octet p+5, bit 7) | | | | | | | | | | | |
| 0 | | | |  | |  | |  | | Ciphering data set not applicable to positioning SIB type 2-18 | |
| 1 | | | |  | |  | |  | | Ciphering data set applicable to positioning SIB type 2-18 | |
|  | | | | | | | | | | | |
| Ciphering data set applicable for positioning SIB type 2-19 (octet p+5, bit 6) | | | | | | | | | | | |
| 0 | | | |  | |  | |  | | Ciphering data set not applicable to positioning SIB type 2-19 | |
| 1 | | | |  | |  | |  | | Ciphering data set applicable to positioning SIB type 2-19 | |
|  | | | | | | | | | | | |
| Ciphering data set applicable for positioning SIB type 2-20 (octet p+5, bit 5) | | | | | | | | | | | |
| 0 | | | |  | |  | |  | | Ciphering data set not applicable to positioning SIB type 2-20 | |
| 1 | | | |  | |  | |  | | Ciphering data set applicable to positioning SIB type 2-20 | |
|  | | | | | | | | | | | |
| Ciphering data set applicable for positioning SIB type 2-21 (octet p+5, bit 4) | | | | | | | | | | | |
| 0 | | | |  | |  | |  | | Ciphering data set not applicable to positioning SIB type 2-21 | |
| 1 | | | |  | |  | |  | | Ciphering data set applicable to positioning SIB type 2-21 | |
|  | | | | | | | | | | | |
| Ciphering data set applicable for positioning SIB type 2-22 (octet p+5, bit 3) | | | | | | | | | | | |
| 0 | | | |  | |  | |  | | Ciphering data set not applicable to positioning SIB type 2-22 | |
| 1 | | | |  | |  | |  | | Ciphering data set applicable to positioning SIB type 2-22 | |
|  | | | | | | | | | | | |
| Ciphering data set applicable for positioning SIB type 2-23 (octet p+5, bit 2) | | | | | | | | | | | |
| 0 | | | |  | |  | |  | | Ciphering data set not applicable to positioning SIB type 2-23 | |
| 1 | | | |  | |  | |  | | Ciphering data set applicable to positioning SIB type 2-23 | |
|  | | | | | | | | | | | |
| Ciphering data set applicable for positioning SIB type 3-1 (octet p+5, bit 1) | | | | | | | | | | | |
| 0 | | | |  | |  | |  | | Ciphering data set not applicable to positioning SIB type 3-1 | |
| 1 | | | |  | |  | |  | | Ciphering data set applicable to positioning SIB type 3-1 | |
|  | | | | | | | | | | | |
| Ciphering data set applicable for positioning SIB type 4-1 (octet p+6, bit 8) | | | | | | | | | | | |
| 0 | | | |  | |  | |  | | Ciphering data set not applicable to positioning SIB type 4-1 | |
| 1 | | | |  | |  | |  | | Ciphering data set applicable to positioning SIB type 4-1 | |
|  | | | | | | | | | | | |
| Ciphering data set applicable for positioning SIB type 5-1 (octet p+6, bit 7) | | | | | | | | | | | |
| 0 | | | |  | |  | |  | | Ciphering data set not applicable to positioning SIB type 5-1 | |
| 1 | | | |  | |  | |  | | Ciphering data set applicable to positioning SIB type 5-1 | |
|  | | | | | | | | | | | |
| Ciphering data set applicable for positioning SIB type 6-1 (octet p+6, bit 6) | | | | | | | | | | | |
| 0 | | |  | |  | |  | | Ciphering data set not applicable to positioning SIB type 6-1 | | |
| 1 | | |  | |  | |  | | Ciphering data set applicable to positioning SIB type 6-1 | | |
| Ciphering data set applicable for positioning SIB type 6-2 (octet p+6, bit 5) | | | | | | | | | | | |
| 0 | | |  | |  | |  | | Ciphering data set not applicable to positioning SIB type 6-2 | | |
| 1 | | |  | |  | |  | | Ciphering data set applicable to positioning SIB type 6-3 | | |
| Ciphering data set applicable for positioning SIB type 6-3 (octet p+6, bit 4) | | | | | | | | | | | |
| 0 | | |  | |  | |  | | Ciphering data set not applicable to positioning SIB type 6-3 | | |
| 1 | | |  | |  | |  | | Ciphering data set applicable to positioning SIB type 6-3 | | |
|  | | | | | | | | | | | |
| Any unassigned bits shall be coded as zero. | | | | | | | | | | |
|  | | | | | | | | | | |
|  | | | | | | | | | | |
| Validity start time (octets q+1 to q+5) | | | | | | | | | | |
|  | | | | | | | | | | |
| This field contains the UTC time when the ciphering data set becomes valid, encoded as octets 2 to 6 of the Time zone and time IE specified in 3GPP TS 24.008 [12]. | | | | | | | | | | |
|  | | | | | | | | | | |
|  | | | | | | | | | | |
| Validity duration (octets q+6 to q+7) | | | | | | | | | | |
|  | | | | | | | | | | |
| This field contains the duration for which the ciphering data set is valid after the validity start time, in units of minutes. | | | | | | | | | | |
|  | | | | | | | | | | |
|  | | | | | | | | | | |
| TAIs list (octets q+8 to r) | | | | | | | | | | |
|  | | | | | | | | | | |
| This field contains the list of tracking areas for which the ciphering data set is applicable, encoded as octets 2 to n of the Tracking area identity list IE as specified in subclause 9.11.3.9. If the TAIs list is empty (as indicated by a zero length), the ciphering data set is applicable to the entire serving PLMN. | | | | | | | | | | |
| NOTE: The ciphering data set is always applicable to at least one of the E -UTRA Positioning SIB types or the NR Positioning SIB types. | | | | | | | | | | |