

**Agenda item:** 7.1.2.3  
**Source:** Nokia Siemens Networks, Nokia Corporation  
**Title:** ASN.1 Structure for SCell Configuration  
**Document for:** Discussion and Decision

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## 1 Introduction

In RAN2#71 meeting, it had been shortly discussed whether the current grouping of SCell configuration parameters is a good way. In this contribution, we suggest a different way of grouping so that configuring the SCell can be more efficient depending on which CA functionalities are used.

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## 2 Discussion

In the last version of RRC CR, the SCell configuration parameters are grouped into radioResourceConfigCommon parameter or radioResourceConfigDedicated parameters. However as SCell configuration parameters are all signalled in a dedicated message, it does not seem to give much benefit to group the parameters in common or dedicated ones. The parameter grouping should be more based on the practical reasons like what kind of SCell configuration will be used mostly and the parameters should be structured so that the mostly potential SCell configurations can be easily configured with minimum overhead. Also one should consider the configuration in such a way that organization of parameters is logical and easy to understand. Interesting characteristic of SCells is that all parameters for such a cell are always given in dedicated signalling i.e. UE is never required to read system information of SCell. Thus from this point of view there does not seem to be need to group parameters into common and dedicated parameters.

Considering that a SCell can have either DL or DL&UL, it could be more logical to group parameters for UL and DL separately so that UL parameters can be easily omitted in case UL is not configured for the SCell.

**Proposal 1: SCell configuration parameters should be grouped per DL and per UL so that in case UL is not configured for SCell, all UL parameters can be omitted.**

To our understanding the basic scheduling mechanism in REL10 would be the normal REL8/9 type of scheduling which does not utilize cross carrier scheduling format. At least this should be the case at the beginning of the CA deployments. Thus it is more logical to group the related parameters together in a separate group as they are common for UL and DL.

**Proposal 2: The cross carrier scheduling related parameters should be grouped separately from UL and DL configuration parameters.**

It should also be considered where the best place to include SCell related parameters is. Currently they are included in the message level (i.e., extension part of RRC Connection Reconfiguration message) However, as it is already captured in the draft CA RRC CR, the SCell should be rather considered as additional radio resources and practically most of the procedure texts have been already added under 5.3.10. (Radio resource configuration). Also there is no clear reason why SCell configuration parameters cannot be included in the extension part of radioResourceConfigDedicated. Thus it is proposed to move the SCell configuration parameters under radioResourceConfigDedicated IE in order to be consistent with the procedural text.

**Proposal 3: It is proposed to move the SCell configuration parameters to extension of radioResourceConfigDedicated instead of having it in the extension of RRC Connection Reconfiguration message.**

In case cross carrier scheduling is used, there are two ways to signal the scheduling relationship i.e. is the SCell scheduling itself and/or some other cells. At least there are two solutions:

- **Solution 1)** When configuring the SCell, scheduling cell is indicated as a part of SCell configuration.
- **Solution 2)** Separate scheduling information element which indicates only scheduling relationship which is independent with SCell configuration.

- **Solution 3)** Each cell configuration (including PCell) indicates which cells are being scheduled from this cell

It should be noted that scheduling relationship is not required to be signalled in case only PCell is used or if cross carrier scheduling is not used. Drawback of solution 3 is that it would require changes in PCell configuration if the cross carrier scheduling is used and PCell is the scheduling cell. Also in case of Solution 3, in addition to the new SCell configuration, the scheduling cell configuration has to be always changed as well to indicate that a new cell is scheduled from this cell. (i.e, scheduling cell) Thus more PCell or SCell parameters have to be signalled. The Solution 1 would only affect the configuration of secondary cell. Solution 2 on the other hand would need complex linkage which cells are being scheduled from which cells. As the solution 1) looks simpler because all the SCell related parameters are grouped together and can be easily structured, we propose to adopt solution 1.

**Proposal 4: Scheduling cell is indicated during the SCell configuration.**

In case cross carrier scheduling is used, network has to signal CIF value per secCellIndex and there are multiple possibilities.

- **Solution 1)** CIF value is provided only once per secCellIndex and UL and DL share same CIF value
- **Solution 2)** CIF value is provided per UL or per DL and per secCellIndex, thus UL and DL can have different CIF values.

Even though Solution 2) provides more flexibility, there does not seem to be any real need to have this much flexibility. Unless SCell is removed in descending order of CIF value or network always reconfigures the CIF values not to have unused value between the lowest and the highest CIF value, there may be some unused CIF value between the lowest and the highest CIF value. Thus even with Solution 1) if the SCell is configured only for DL, the network will consider the CIF value for UL as “unused value”. As there is no clear justification for extra complexity in Solution 2), we propose to adopt Solution 1)

**Proposal 5: CIF value is shared by UL and DL.**

CIF value for SCell needs to be known only when scheduled SCell is added. Thus if the CIF value “0” for the scheduling SCell is implicitly assigned, there is no need to reconfigure the scheduling cell (i.e PCell or SCell) even though a new SCell is added and this SCell has to be scheduled by some other cell.

**Proposal 6: It is proposed to assign CIF value to “0” for the scheduling Cell and CIF value allocation for the scheduled SCell is from “1” to “7”.**

In case cross carrier scheduling is used, it is clear that PDCCH formation should include CIF. However it is not clear what should be the PDCCH format when the last SCell, which is cross carrier scheduled, is removed. There are two possibilities.

- **Solution 1)** Keeping the PDCCH format as it is. (i.e, including CIF)
- **Solution 2)** Falling back to Rel-8/9 format. (i.e, without CIF)

With Solution 1), it can reduce the number of the PDCCH format changes in case the last SCell, which is cross carrier scheduled, is added and removed often comparing to Solution 2). However, in case the coverage is running out, it may not be a good idea to keep the longer PDCCH format. Thus it is proposed to signal explicitly so that network can have control over which PDCCH format shall be used per PCell and SCell.

**Proposal 7: It is proposed that network signals which PDCCH format shall be used per PCell and SCell.**

As per of RAN1 agreements [1][2], PUCCH resource handling depends on whether SCell is scheduled from PCell or SCell i.e in case SCell is scheduled from SCell, PUCCH resource should be signalled explicitly while scheduled from PCell, implicit signalling is used. Thus PUCCH resource allocation parameters should be included in the SCell DL parameter group.

**Proposal 8: It is proposed to include explicit PUCCH resource allocation parameter in SCell DL parameter group.**

Also RAN1 added new PUCCH resource format - DFT-S-OFDM and which can be used instead of PUCCH channel selection parameter. In case DFT-S-OFDM is used, it will be applicable on all SCells and PCells, thus PUCCH resource allocation parameters as in Proposal 8 are not needed. It should be noted that there are no agreements yet whether the new parameter, DFT-S-OFDM format is intended to be used only in case of SCells are configured for the UE. However this parameter is only relevant to CA operation, UE who does not support CA does not need to receive this parameter. Therefore it is proposed to group DFT-S-OFDM parameter into CA relevant IE group. It is also proposed to add some

condition so that DFT-S-OFDM parameter and PUCCH channel selection parameters are not included at the same time..

**Proposal 9: It is proposed to include DFT-S-OFDM parameters in the RadioResourceConfigDedicated on the same level as secCellToAddModList. It is also proposed to add some condition so that DFT-S-OFDM parameter and PUCCH channel selection parameters are not included at the same time.**

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## 3 Conclusion

We propose the followings and the Annex shows the ASN.1 structured according to the proposals.

**Proposal 1: SCell configuration parameters should be grouped per DL and per UL so that in case UL is not configured for SCell, all UL parameters can be omitted.**

**Proposal 2: The cross carrier scheduling related parameters should be grouped separately from UL and DL configuration parameters.**

**Proposal 3: It is proposed to move the SCell configuration parameters to extension of radioResourceConfigDedicated instead of having it in the extension of RRC Connection Reconfiguration message.**

**Proposal 4: Scheduling cell is indicated during the SCell configuration.**

**Proposal 5: CIF value shared by UL and DL.**

**Proposal 6: It is propose to assign CIF value to “0” for the scheduling Cell and CIF value allocation for the scheduled SCell is from “1” to “7”.**

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**Proposal 8: It is proposed to include explicit PUCCH resource allocation parameter in SCell DL parameter group.**

**Proposal 9: It is proposed to include DFT-S-OFDM parameters in the RadioResourceConfigDedicated on the same level as secCellToAddModList. It is also proposed to add some condition so that DFT-S-OFDM parameter and PUCCH channel selection parameters are not included at the same time.**

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## 4 Reference

[1] R1-10xxxx, *Draft Report of 3GPP TSG RAN WG1 #62 v0.1.0*, MCC Support

[2] R1-105040, *Way Forward on PUCCH Resource Allocation*, Samsung, CATT, ETRI, Panasonic, Ericsson, ST-Ericsson, LG-Ericsson, LGE, InterDigital, MediaTek, Huawei, NTT DOCOMO, Potevio, Alcatel-Lucent, Alcatel-Lucent Shanghai Bell, RIM, Sharp

## 5 Annex

### – *PhysicalConfigDedicated*

The IE *PhysicalConfigDedicated* is used to specify the UE specific physical channel configuration.

#### *PhysicalConfigDedicated information element*

```
-- ASN1START
PhysicalConfigDedicated ::= SEQUENCE {
    pdsch-ConfigDedicated      PDSCH-ConfigDedicated      OPTIONAL,      -- Need ON
    pucch-ConfigDedicated      PUCCH-ConfigDedicated      OPTIONAL,      -- Need ON
    pusched-ConfigDedicated    PUSCH-ConfigDedicated      OPTIONAL,      -- Need ON
    uplinkPowerControlDedicated UplinkPowerControlDedicated OPTIONAL,      -- Need ON
    tpc-PDCCH-ConfigPUCCH      TPC-PDCCH-Config          OPTIONAL,      -- Need ON
    tpc-PDCCH-ConfigPUSCH      TPC-PDCCH-Config          OPTIONAL,      -- Need ON
    cqi-ReportConfig           CQI-ReportConfig           OPTIONAL,      -- Need ON
    soundingRS-UL-ConfigDedicated SoundingRS-UL-ConfigDedicated OPTIONAL,      -- Need ON
    antennaInfo                CHOICE {
        explicitValue          AntennaInfoDedicated,
        defaultValue           NULL
    } OPTIONAL,      -- Need ON
    schedulingRequestConfig     SchedulingRequestConfig    OPTIONAL,      -- Need ON
    ...
    [ [ cqi-ReportConfig-v920      CQI-ReportConfig-v920      OPTIONAL,      -- Need ON
        antennaInfo-v920          AntennaInfoDedicated-v920   OPTIONAL,      -- Need ON
    ] ]
}
-- ASN1STOP
```

#### *PhysicalConfigDedicated field descriptions*

##### ***antennaInfo***

A choice is used to indicate whether the *antennaInfo* is signalled explicitly or set to the default antenna configuration as specified in section 9.2.4.

##### ***tpc-PDCCH-ConfigPUCCH***

PDCCH configuration for power control of PUCCH using format 3/3A, see TS 36.212 [22].

##### ***tpc-PDCCH-ConfigPUSCH***

PDCCH configuration for power control of PUSCH using format 3/3A, see TS 36.212 [22].

NOTE: During handover, the UE performs a MAC reset, which involves reverting to the default CQI/ SRS/ SR configuration in accordance with subclause 5.3.13 and TS 36.321 [6, 5.9 & 5.2]. Hence, for these parts of the dedicated radio resource configuration, the default configuration (rather than the configuration used in the source cell) is used as the basis for the delta signalling that is included in the message used to perform handover.

## – PUCCH-Config

The IE *PUCCH-ConfigCommon* and IE *PUCCH-ConfigDedicated* are used to specify the common and the UE specific PUCCH configuration respectively.

### PUCCH-Config information elements

```
-- ASN1START

PUCCH-ConfigCommon ::=          SEQUENCE {
    deltaPUCCH-Shift              ENUMERATED {ds1, ds2, ds3},
    nRB-CQI                      INTEGER (0..98),
    nCS-AN                       INTEGER (0..7),
    n1PUCCH-AN                   INTEGER (0..2047)
}

PUCCH-ConfigDedicated ::=        SEQUENCE {
    ackNackRepetition             CHOICE {
        release                   NULL,
        setup                     SEQUENCE {
            repetitionFactor      ENUMERATED {n2, n4, n6, spare1},
            n1PUCCH-AN-Rep        INTEGER (0..2047)
        }
    },
    tdd-AckNackFeedbackMode       ENUMERATED {bundling, multiplexing} OPTIONAL  -- Cond TDD
}

PUCCH-ConfigDedicated-v0x0 ::= SEQUENCE {
    dft-S-OFDM-Index-v0x0       INTEGER (0..2047)  -- Value range is FFS
}

-- ASN1STOP
```

| PUCCH-Config field descriptions                                                                                                                                                                                                                                                                                                                                            |                                                                     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|
| <b>deltaPUCCH-Shift</b>                                                                                                                                                                                                                                                                                                                                                    |                                                                     |
| Parameter: $\Delta_{\text{shift}}^{\text{PUCCH}}$                                                                                                                                                                                                                                                                                                                          | , see 36.211, 5.4.1, where ds1 corresponds to value 1 ds2 to 2 etc. |
| <b>nRB-CQI</b>                                                                                                                                                                                                                                                                                                                                                             |                                                                     |
| Parameter: $N_{\text{RB}}^{(2)}$                                                                                                                                                                                                                                                                                                                                           | see TS 36.211 [21, 5.4].                                            |
| <b>nCS-An</b>                                                                                                                                                                                                                                                                                                                                                              |                                                                     |
| Parameter: $N_{\text{cs}}^{(1)}$                                                                                                                                                                                                                                                                                                                                           | see TS 36.211 [21, 5.4].                                            |
| <b>n1Pucch-AN</b>                                                                                                                                                                                                                                                                                                                                                          |                                                                     |
| Parameter: $N_{\text{PUCCH}}^{(1)}$                                                                                                                                                                                                                                                                                                                                        | see TS 36.213 [23, 10.1].                                           |
| <b>ackNackRepetition</b>                                                                                                                                                                                                                                                                                                                                                   |                                                                     |
| Parameter indicates whether ACK/NACK repetition is configured, see TS 36.213 [23, 10.1].                                                                                                                                                                                                                                                                                   |                                                                     |
| <b>repetitionFactor</b>                                                                                                                                                                                                                                                                                                                                                    |                                                                     |
| Parameter $N_{\text{ANRep}}$ see TS 36.213 [23, 10.1] where n2 corresponds to repetition factor 2, n4 to 4.                                                                                                                                                                                                                                                                |                                                                     |
| <b>n1Pucch-AN-Rep</b>                                                                                                                                                                                                                                                                                                                                                      |                                                                     |
| Parameter: $n_{\text{PUCCH,ANRep}}^{(1)}$ see TS 36.213 [23, 10.1].                                                                                                                                                                                                                                                                                                        |                                                                     |
| <b>tdd-AckNackFeedbackMode</b>                                                                                                                                                                                                                                                                                                                                             |                                                                     |
| Parameter indicates one of the two TDD ACK/NACK feedback modes used, see TS 36.213 [23, 7.3]. bundling corresponds to use of ACK/NACK bundling whereas, multiplexing corresponds to ACK/NACK multiplexing. The same value applies to both ACK/NACK feedback modes on PUCCH as well as on PUSCH. For TDD configuration 5, E-UTRAN should always set this field to bundling. |                                                                     |

| Conditional presence | Explanation                                                                                                                  |
|----------------------|------------------------------------------------------------------------------------------------------------------------------|
| TDD                  | The field is mandatory present for TDD; it is not present for FDD and the UE shall delete any existing value for this field. |

## – RadioResourceConfigDedicated

The IE *RadioResourceConfigDedicated* is used to setup/modify/release RBs, to modify the MAC main configuration, to modify the SPS configuration and to modify dedicated physical configuration.

### RadioResourceConfigDedicated information element

```
-- ASN1START

RadioResourceConfigDedicated ::=
    SEQUENCE {
        srb-ToAddModList          SRB-ToAddModList          OPTIONAL,      -- Cond HO-Conn
        drb-ToAddModList          DRB-ToAddModList          OPTIONAL,      -- Cond HO-
toEUTRA
        drb-ToReleaseList         DRB-ToReleaseList         OPTIONAL,      -- Need ON
        mac-MainConfig            CHOICE {
            explicitValue         MAC-MainConfig,
            defaultValue          NULL
        },          OPTIONAL,      -- Cond HO-
toEUTRA2
        sps-Config                SPS-Config                OPTIONAL,      -- Need ON
        physicalConfigDedicated   PhysicalConfigDedicated   OPTIONAL,      -- Need ON
        ...,
        [[ rlf-TimersAndConstants-r9      RLF-TimersAndConstants-r9      OPTIONAL      -- Need ON
        ]],
        [[
            ca-Config              SEQUENCE {
                pcellPDCCHFormatWithCIF  UsePDCCHFormatWithCIF,
                dft-S-OFDM-Index-vax0    INTEGER (0)          OPTIONAL,      -- Value range is FFS
                secCellToAddModList-r10   SecCellToAddModList-r10  OPTIONAL      -- Need/ cond FFS
            },
            secCellToReleaseList-r10     SecCellToReleaseList-r10  OPTIONAL      -- Need
        ]],
    }

SRB-ToAddModList ::=
    SEQUENCE (SIZE (1..2)) OF SRB-ToAddMod

SRB-ToAddMod ::=
    SEQUENCE {
        srb-Identity              INTEGER (1..2),
        rlc-Config                CHOICE {
            explicitValue         RLC-Config,
            defaultValue          NULL
        },          OPTIONAL,      -- Cond Setup
        logicalChannelConfig       CHOICE {
            explicitValue         LogicalChannelConfig,
            defaultValue          NULL
        },          OPTIONAL,      -- Cond Setup
        ...
    }

DRB-ToAddModList ::=
    SEQUENCE (SIZE (1..maxDRB)) OF DRB-ToAddMod

DRB-ToAddMod ::=
    SEQUENCE {
        eps-BearerIdentity        INTEGER (0..15)          OPTIONAL,      -- Cond DRB-Setup
        drb-Identity              DRB-Identity,
        pdcp-Config               PDCP-Config              OPTIONAL,      -- Cond PDCP
        rlc-Config                RLC-Config               OPTIONAL,      -- Cond Setup
        logicalChannelIdentity     INTEGER (3..10)          OPTIONAL,      -- Cond DRB-Setup
        logicalChannelConfig       LogicalChannelConfig     OPTIONAL,      -- Cond Setup
        ...
    }

DRB-ToReleaseList ::=
    SEQUENCE (SIZE (1..maxDRB)) OF DRB-Identity

SecCellToAddModList-r10 ::= SEQUENCE (SIZE (1..maxSecCell-r10)) OF SecCellToAddMod-r10

SecCellToAddMod-r10 ::= SEQUENCE {
    secCellIndex-r10          ServCellIndex-r10,
    dl-Config-r10            DL-Config-r10          OPTIONAL,      -- Cond SCellSetup
    ul-Config-r10            UL-Config-r10          OPTIONAL,      -- Need ON
    x-SchedulingConfig        X-SchedulingConfig-r10  OPTIONAL,      -- Need ON
    ...
}

-- SCell DL related parameters
DL-Config-r10 ::=
    SEQUENCE {
        physCellId-r10         PhysCellId              OPTIONAL,      -- Cond SCellSetup
        dl-CarrierFreq          ARFCN-ValueEUTRA         OPTIONAL,      -- Cond SCellSetup
    }

```

```

dl-carrierBandwidth      CarrierBandwidthEUTRA      OPTIONAL,  -- Cond SCellSetup
-- PDSCH parameters
pdsch-ConfigCommon      PDSCH-ConfigCommon          OPTIONAL,  -- Cond SCellSetup
pdsch-ConfigDedicated    PDSCH-ConfigDedicated        OPTIONAL,  -- Need ON
cqi-ReportConfig         CQI-ReportConfig            OPTIONAL,  -- Need ON
-- cqi-PUCCH-ResourceInex is not needed. So 11 bits are wasted unless defining a new
group for the rest of the parameter.
-- It is FFS if the rest of the parameters in the cqi-ReportPeriodic need to be defined
per DL SCell separately.
pmi-RI-Report-r9         ENUMERATED {setup}          OPTIONAL,  -- Cond PMIRI
-- In cqi-ReportConfig-v920 only pmi-RI-Report-r9 needs to be configured per SCell but
cqi-Mask-r9 is configured per PCell.
scellPDSCH-FormatWithCIF UsePDCCHFormatWithCIF,
-- Antenna parameter
antennaInfoCommon        AntennaInfoCommon          OPTIONAL,  -- Need ON
antennaInfo              CHOICE {
    explicitValue          AntennaInfoDedicated,
    defaultValue          NULL
}
antennaInfo-v920         AntennaInfoDedicated-v920    OPTIONAL,  -- Need ON
mbsfn-SubframeConfigList MBSFN-SubframeConfigList    OPTIONAL,  -- Need ON,
n1-PUCCH-AN-List         N1-PUCCH-AN-PersistentList  OPTIONAL,  -- Cond
NoPCellSchedule
-- If the scheduling cell is not PCell and if DFT-S-OFDM format is not used, this
information shall be included.
...
}

-- SCell UL related parameters
UL-Config-r10 ::= SEQUENCE {
    ul-CarrierFreq          ARFCN-ValueEUTRA          OPTIONAL,  -- Cond SCellSetup
    additionalSpectrumEmission AdditionalSpectrumEmission OPTIONAL,  -- Need ON
    p-Max                   P-MAX                     OPTIONAL,  -- Need ON
    pusched-ConfigCommon    PUSCH-ConfigCommon        OPTIONAL,  -- Cond SCellSetup
    soundingRS-UL-ConfigCommon SoundingRS-UL-ConfigCommon OPTIONAL,  -- Cond SCellSetup
    -- ackNackSRS-SimultaneousTransmission shall be the same for all CCs
    soundingRS-UL-ConfigDedicated SoundingRS-UL-ConfigDedicated OPTIONAL,  -- Need ON
    -- Parameter from UplinkPowerControlCommon
    p0-NominalPUSCH         INTEGER (-126..24)         OPTIONAL,  -- Cond SCellSetup
    alpha                   ENUMERATED {a10, a104, a105, a106, a107, a108, a109, a11}
    OPTIONAL,  -- Cond SCellSetup
    uplinkPowerControlDedicated UplinkPowerControlDedicated OPTIONAL,  -- Need ON
    -- p0-UE-PUCCH shall be the same for all CCs
    ul-CyclicPrefixLength    UL-CyclicPrefixLength      OPTIONAL,  -- Need ON
    tpc-PDCCH-ConfigPUSCH    TPC-PDCCH-Config          OPTIONAL,  -- Need ON
    pathLossRef              ENUMERATED {pCell}         OPTIONAL,  -- Need ON
    -- TDD specific parameters
    tdd-Parameter           SEQUENCE {
        prach-ConfigIndex    INTEGER (0..63),
        prach-FreqOffset      INTEGER (0..94)
    }
    ...
}

-- PROPOSAL 2: crossCarrierScheduling related parameters
X-SchedulingConfig-r10 ::= CHOICE {
    notCrossScheduledFromOtherCell SEQUENCE {
        -- PDCCH related parameter
        pdcch-Config          SEQUENCE {
            phich-Config       PHICH-Config,
            ...
        }
    },
    ...
}
crossScheduledFromOtherCell SEQUENCE {

```

```

cif CIF,
-- CIF value used for this cell on PDCCH. Assumed to be common for UL&DL
cfi-Value INTEGER (1..3) OPTIONAL,
-- Control format indicator indicates the starting OFDM symbol of cross-scheduled
PDSCH
schedulingCellIndex ServCellIndex-r10,
-- Indication of the CellIndex of the scheduling cell
...
}
}

SecCell-ToReleaseList-r10 ::= SEQUENCE (SIZE (1..maxSecCell-r10)) OF CellIndex-r10

CIF ::= INTEGER (1..7)
-- Do we need to fix Scheduling Cell = CIF-DL (0)? Different CIF for UL and DL?

-- ASN1STOP

```

| <b>RadioResourceConfigDedicated field descriptions</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|--------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>srb-Identity</b>                                    | Value 1 is applicable for SRB1 only.<br>Value 2 is applicable for SRB2 only.                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>rlc-Config</b>                                      | For SRBs a choice is used to indicate whether the RLC configuration is signalled explicitly or set to the values defined in the default RLC configuration for SRB1 in 9.2.1.1 or for SRB2 in 9.2.1.2. RLC AM is the only applicable RLC mode for SRB1 and SRB2. E-UTRAN does not reconfigure the RLC mode of DRBs except when a full configuration option is used, and may reconfigure the UM RLC SN field size only upon handover within E-UTRA or upon the first reconfiguration after RRC connection re-establishment. |
| <b>mac-MainConfig</b>                                  | Although the ASN.1 includes a choice that is used to indicate whether the mac-MainConfig is signalled explicitly or set to the default MAC main configuration as specified in 9.2.2, EUTRAN does not apply "defaultValue".                                                                                                                                                                                                                                                                                                |
| <b>sps-Config</b>                                      | The default SPS configuration is specified in 9.2.3.                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>physicalConfigDedicated</b>                         | The default dedicated physical configuration is specified in 9.2.4.                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>logicalChannelConfig</b>                            | For SRBs a choice is used to indicate whether the logical channel configuration is signalled explicitly or set to the default logical channel configuration for SRB1 as specified in 9.2.1.1 or for SRB2 as specified in 9.2.1.2.                                                                                                                                                                                                                                                                                         |
| <b>logicalChannelIdentity</b>                          | The logical channel identity for both UL and DL.                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

| <b>Conditional presence</b> | <b>Explanation</b>                                                                                                                                                                                                                                                                                                                                            |
|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>DRB-Setup</i>            | The field is mandatory present if the corresponding DRB is being set up; otherwise it is not present.                                                                                                                                                                                                                                                         |
| <i>PDCP</i>                 | The field is mandatory present if the corresponding DRB is being setup; the field is optionally present, need ON, upon handover within E-UTRA and upon the first reconfiguration after re-establishment but in both these cases only when <i>fullConfig</i> is not included in the <i>RRCCConnectionReconfiguration</i> message; otherwise it is not present. |
| <i>Setup</i>                | The field is mandatory present if the corresponding SRB/DRB is being setup; otherwise the field is optionally present, need ON.                                                                                                                                                                                                                               |
| <i>HO-Conn</i>              | The field is mandatory present in case of handover to E-UTRA or when the <i>fullConfig</i> is included in the <i>RRCCConnectionReconfiguration</i> message or in case of RRC connection establishment; otherwise the field is optionally present, need ON. Upon connection establishment/ re-establishment only SRB1 is applicable.                           |
| <i>HO-toEUTRA</i>           | The field is mandatory present in case of handover to E-UTRA or when the <i>fullConfig</i> is included in the <i>RRCCConnectionReconfiguration</i> message; In case of RRC connection establishment and RRC connection re-establishment the field is not present; otherwise the field is optionally present, need ON.                                         |
| <i>HO-toEUTRA2</i>          | The field is mandatory present in case of handover to E-UTRA or when the <i>fullConfig</i> is included in the <i>RRCCConnectionReconfiguration</i> message; otherwise the field is optionally present, need ON.                                                                                                                                               |
| <i>SCellSetup</i>           | <u>This field is mandatory present if the new SCell is configured; otherwise the field is optionally present, need ON</u>                                                                                                                                                                                                                                     |

— *UsePDCCH-FormatWithCIF*

The IE *UsePDCCH-FormatWithCIF* is used to specify whether PDCCH format has CIF or not. ‘true’ means CIF is used.

***UsePDCCHFormatWithCIF* information elements**

```
-- ASN1START
UsePDCCH-FormatWithCIF ::= BOOLEAN
-- ASN1STOP
```