Internal

BSC6900 Data Configuration — Radio Layer Data

BSC6900V900R012

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Objectives

After this course, you will master:

- The configuration procedure, commands and parameters of logical cell
- The neighboring cell relationship and configuration commands

Reference

- 《 (For Customer)BSC6900 UMTS Product Documentation(V900R012C00_01)-EN 》
- 《BSC6900 UMTS Initial Configuration Guide(V900R012C00_01) 》

Contents

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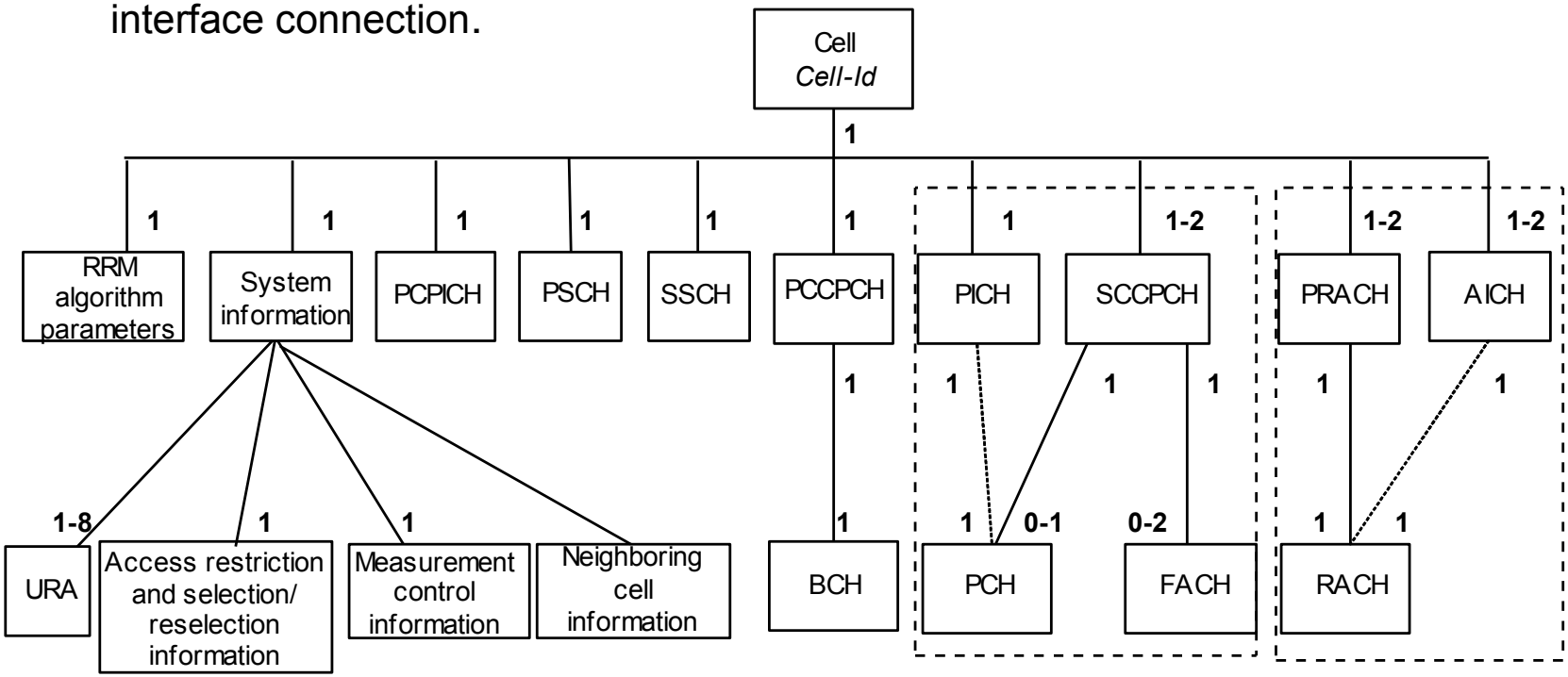
Overview

- Logical Cell Module

  Logical cell is the basic unit for UE to register and access UTRAN network.

  Cell informs UE its access capability on uu interface by system information broadcast.

  One cell includes all common resource and management algorithm for one uu interface connection.

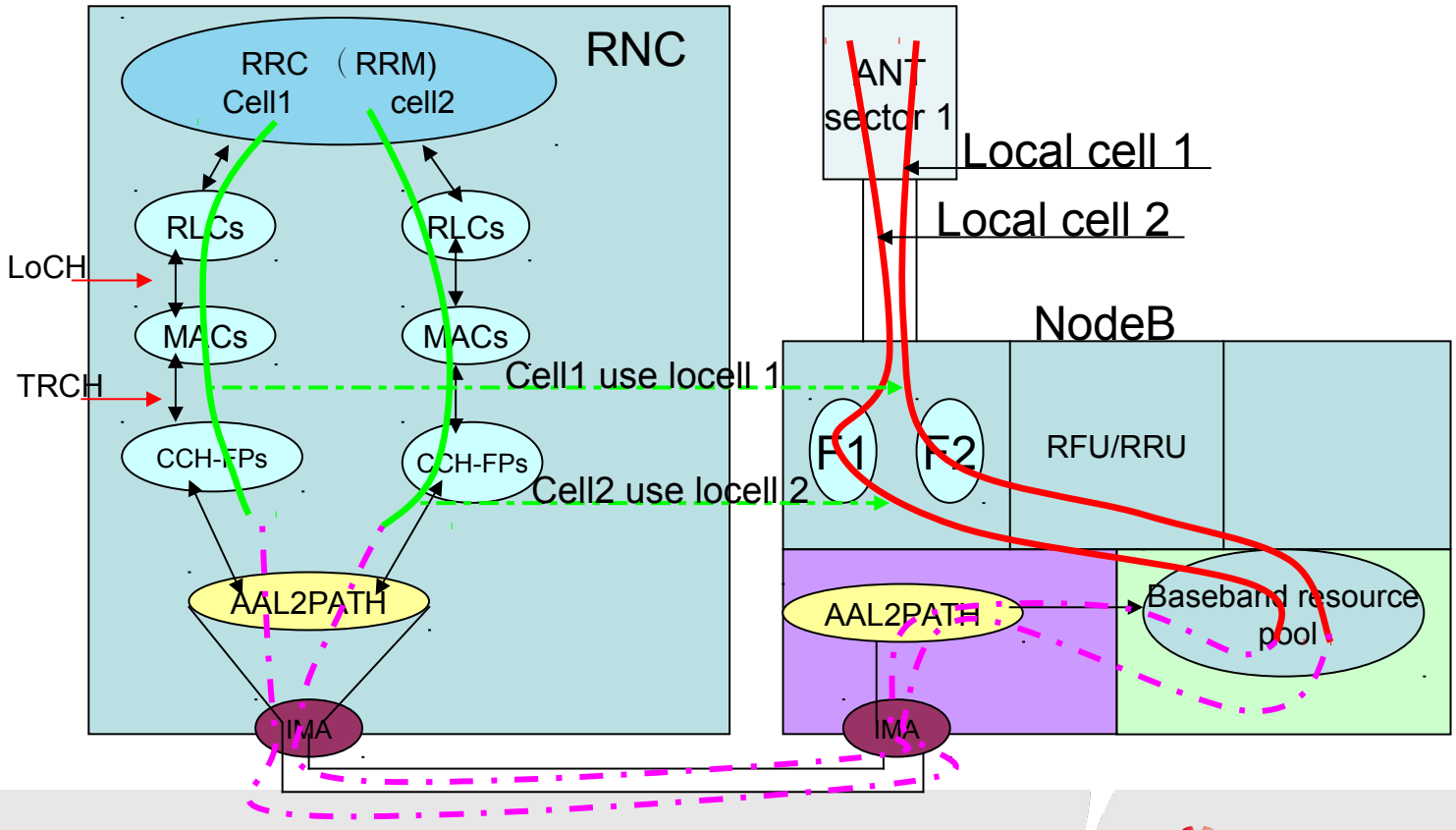


Overview

- Logical Cell Module — mapping on the equipment

  One logical cell includes uu interface layer 3 controll algorithm, layer 2 resource and common physical channel resource.

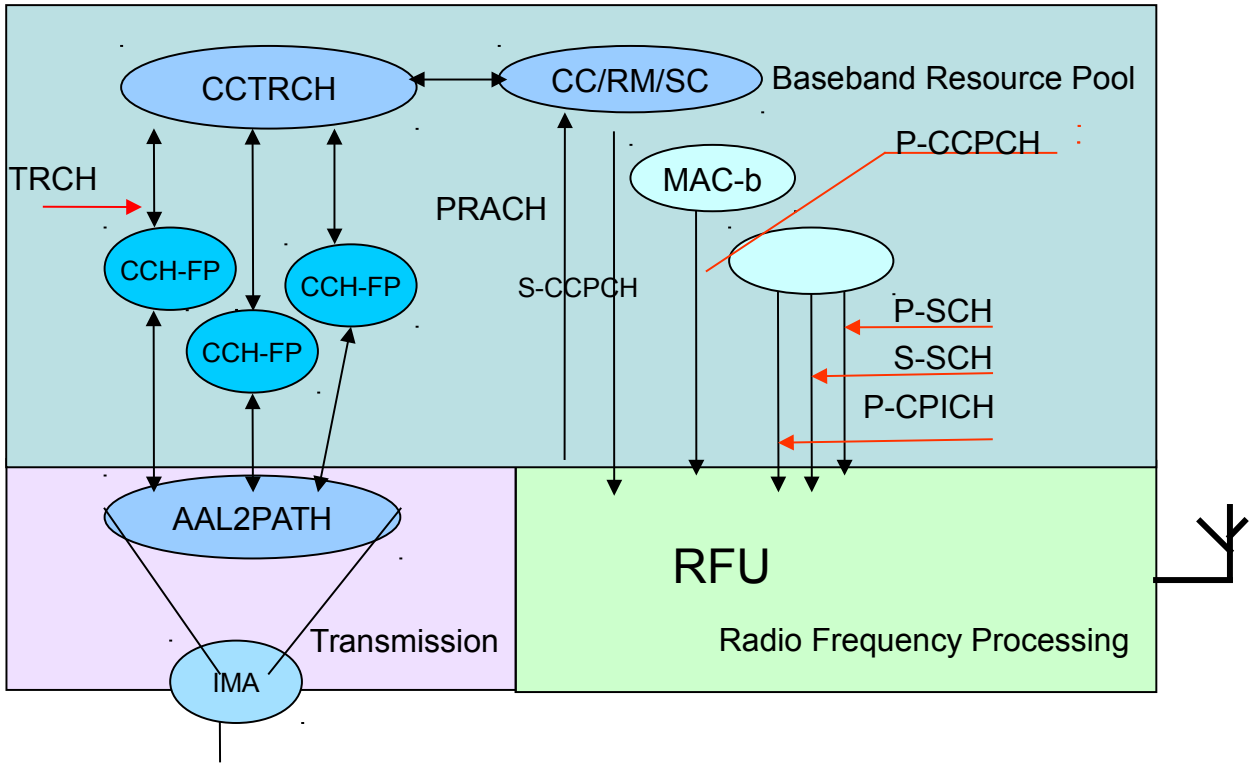
  Common physical channel resource in logical cell is supported by local cell on NodeB.



Overview

- Local cell on NodeB

  Local cell on NodeB mainly includes baseband and radio frequency resource. One NodeB includes several local cells, supplying physical resource for several logical cells.



LOCALL CELL=baseband resource + RF resource + antenna feeder

Contents

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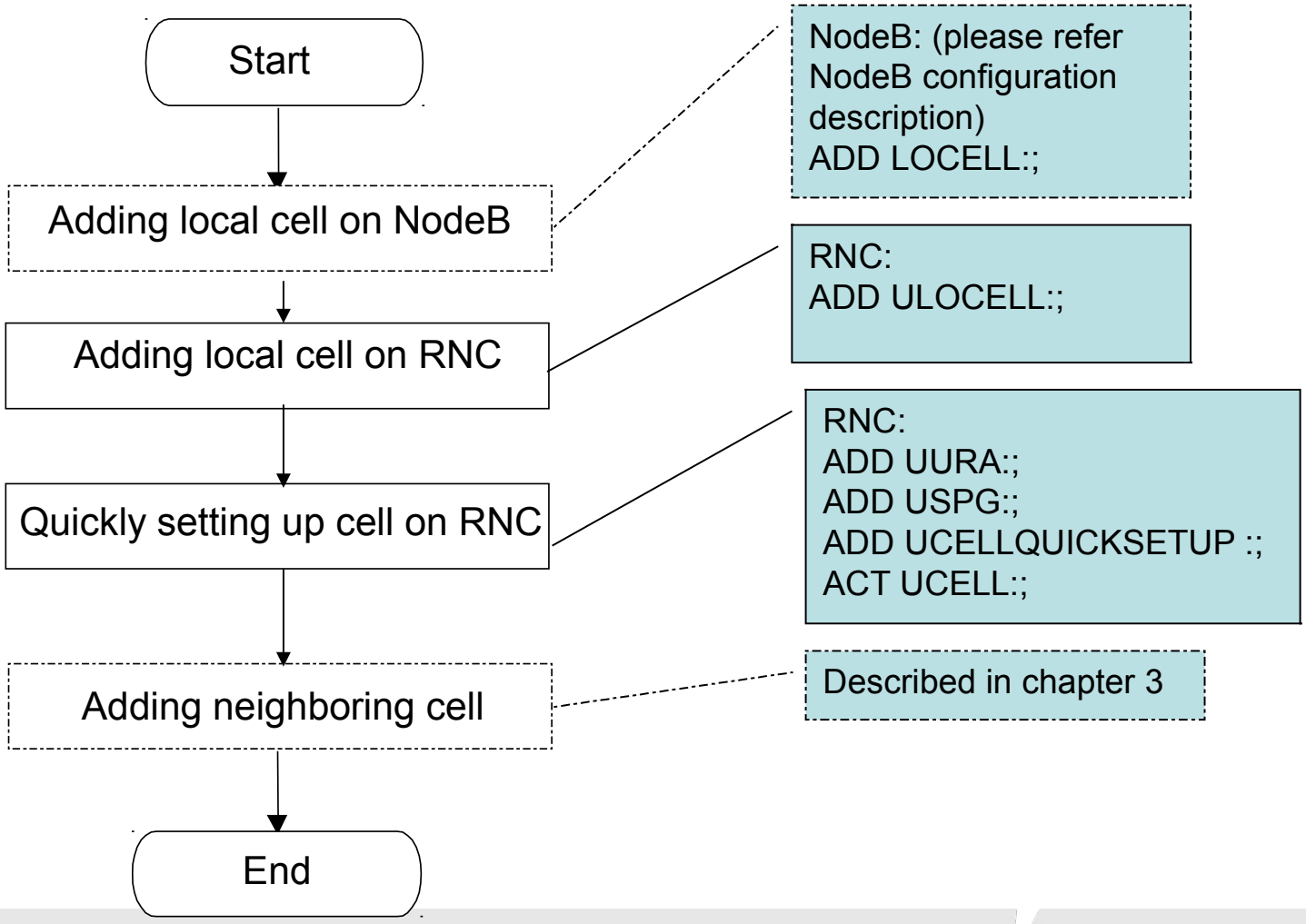
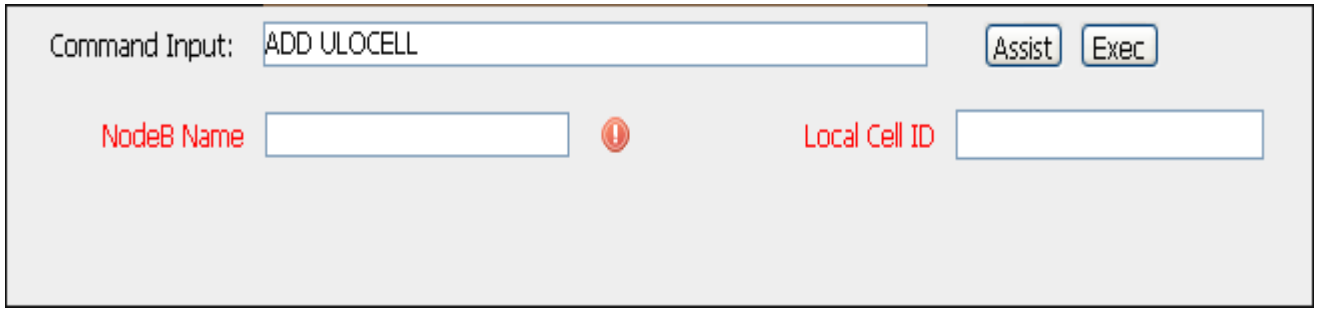
Cell Data Configuration

- Cell data configuration flow



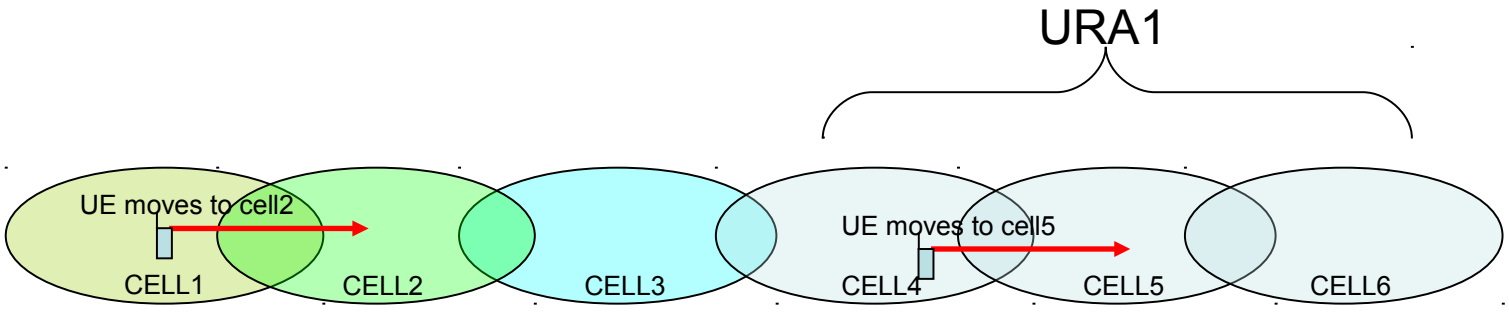
Cell Data Configuration---MML Commands and Parameters

- Adding local cell on RNC(ADD ULOCELL:;)
  - Local cell must be configured on NodeB, and the status of local cell on NodeB is enable.
  - If the local cell ID on RNC is different with the ID on NodeB, cell will not be set up.



Cell Data Configuration---MML Commands and Parameters

- Adding URA on RNC (ADD UURA:;)
  - When add a cell, we should configuration the URA the cell belonging to.
  - The range of URA is designed by network planning person.
  - The URA is used to transfer RRC connection state to URA_PCH, reducing CELL UPDATE signal when UE in CELL_PCH/CELL/FACH.



UE in CELL-PCH/CELL-FACH state

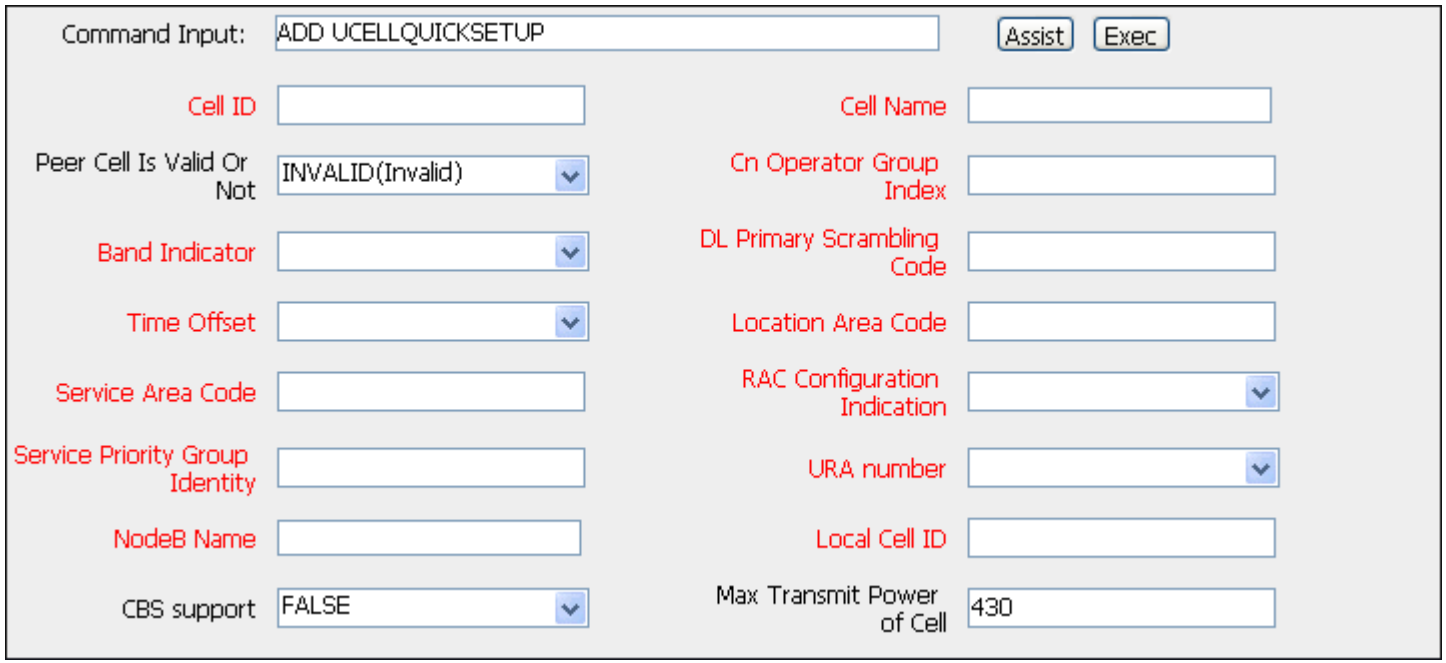
✓When UE moves from cell1 to cell2, UE sent cell update to inform UTRAN Its cell-level location

UE in URA-PCH state

✓When UE moves from cell4 to cell5, UE need not sent cell update to inform UTRAN Its cell-level location, because UTRAN just Records the URA location of the UE

Cell Data Configuration---MML Commands and Parameters

- Adding cell on RNC (ADD UCELLQUICKSETUP)
  - The following slides explain the main parameters.



Cell Data Configuration---MML Commands and Parameters

- Adding cell on RNC (ADD UCELLQUICKSETUP)
  - Parameters: peer cell is valid or not, peer cell ID
    - These two parameters is related to RNC pool. When RNC supports this feature, one NodeB can belong to two RNCs.
    - Peer cell ID is the corresponding cell ID on NodeB, which is on peer RNC in RNC pool.
    - Related configuration
      - ADD URNCPOOL
      - ADD URNCPOOLMEMBER

Cell Data Configuration---MML Commands and Parameters

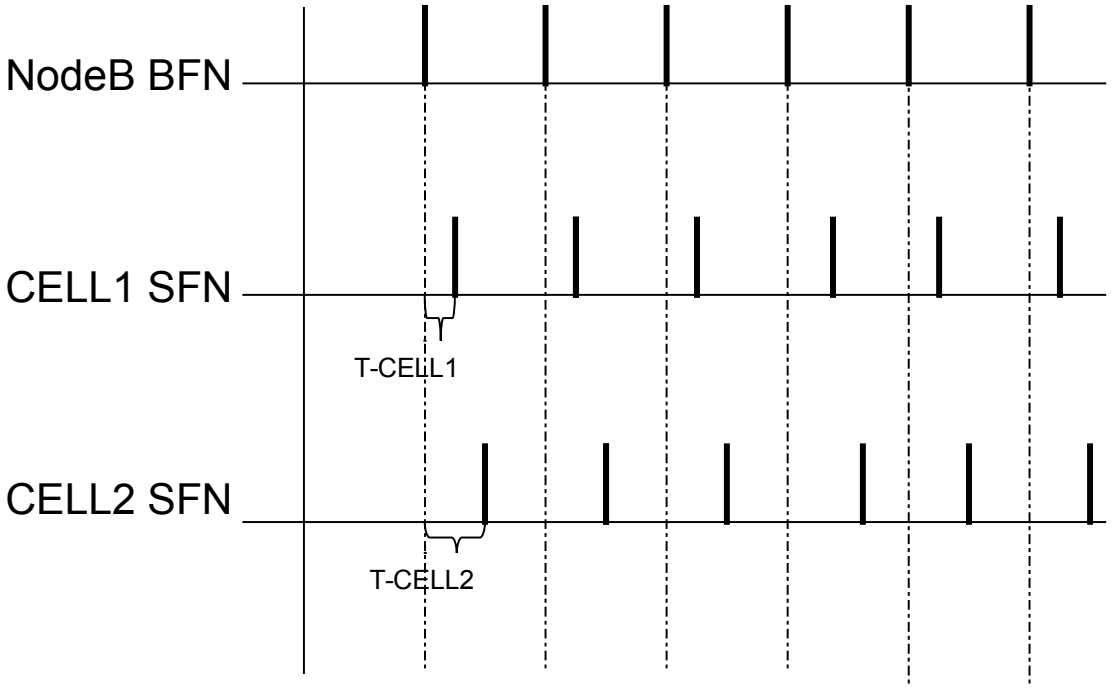
- Adding cell on RNC (ADD UCELLQUICKSETUP)
  - Parameters: CN Operator Group Index
    - This parameters is related to MOCN. MOCN is one RAN sharing technology, it supports different CN operator sharing cell resource.
    - When one cell belongs to several CN operators, we need configure this parameter.
    - Related configuration:
      - ADD UCNOPERATOR
      - ADD UCNOPERGROUP

Cell Data Configuration---MML Commands and Parameters

- Adding cell on RNC (ADD UCELLQUICKSETUP)
  - Parameters: Service priority group identity
    - In Multi-band networking, we use SPG to differentiate cell group with different priorities.
    - When add SPG, we can define different priorities for different services.
    - Services choose handover goal cells depending on SPG parameter.
  - Parameters: DL primary scrambling code
    - Downlink use primary scrambling code to scramble.
    - There are 512 DL primary scrambling codes. Usually DL primary scrambling code is supplied by network planning person.
    - Neighboring intra-frequency cells can’t use the same DL primary scrambling code.

Cell Data Configuration---MML Commands and Parameters

- Adding cell on RNC (ADD UCELLQUICKSETUP)
  - Parameters: Time offset [chip]
    - This parameter is used to differentiate neighboring inter-frequency cells SFN in the same NodeB. In order to UE differentiates the SCH of two cells.



Cell Data Configuration---MML Commands and Parameters

- Adding cell on RNC (**ADD** UCELLQUICKSETUP)
  - Parameter ： Max transmit power of cell
    - Max transmit power of logical cell， it is not the fact transmit power.
    - The fact transmit power includes common channel transmit power and dedicate channel transmit power.
    - Max transmit power of logical cell can’t greater than the Max transmit power of local cell, otherwise, cell can’t be set up.
  - parameter ： PCPICH transmit power
    - PCPICH has the constant transmit power. The quality and strength of PCPICH signal decide the radius of cell handover and cell reselection.
    - We need to plan PCPICH transmit power of neighboring cells. Otherwise, it will bring pilot pollution.

Cell Data Configuration---MML Commands and Parameters

- Adding cell on RNC (**ADD** UCELLQUICKSETUP)
  - Parameter ： Cell VP limit indicator
    - If the value of this parameter is “TRUE”, the cell can’t do VP service.
    - Application example ： there is a cell which covers the martial base, in order to prevent breach of confidence by VP, we can set this parameter to “TRUE”.
- Act cell on RNC （ ACT UCELL:; ）
  - When we finish the front configuration, we use this command to act all related configuration of this cell.
  - We can observe the cell set up signal flow triggered by this command on Iub interface trace.

Cell Data Configuration---MML Commands and Parameters

- Other commands and operations ：
  - Modify the Max transmit power and PCPICH transmit power of cell:
    - **MOD UCELL**: MaxTxPower=400, PCPICHPower=330;
  - Display the status of cell ：
    - **DSP UCELL:;**
  - Trace cell signal ：
    - We can trace Iub interface signal on RNC, NodeB
    - Cell real-time performance monitoring
    - We can monitor the cell code tree, RTWP, DL transmit power by real-time performance monitoring on RNC, NodeB.

Contents

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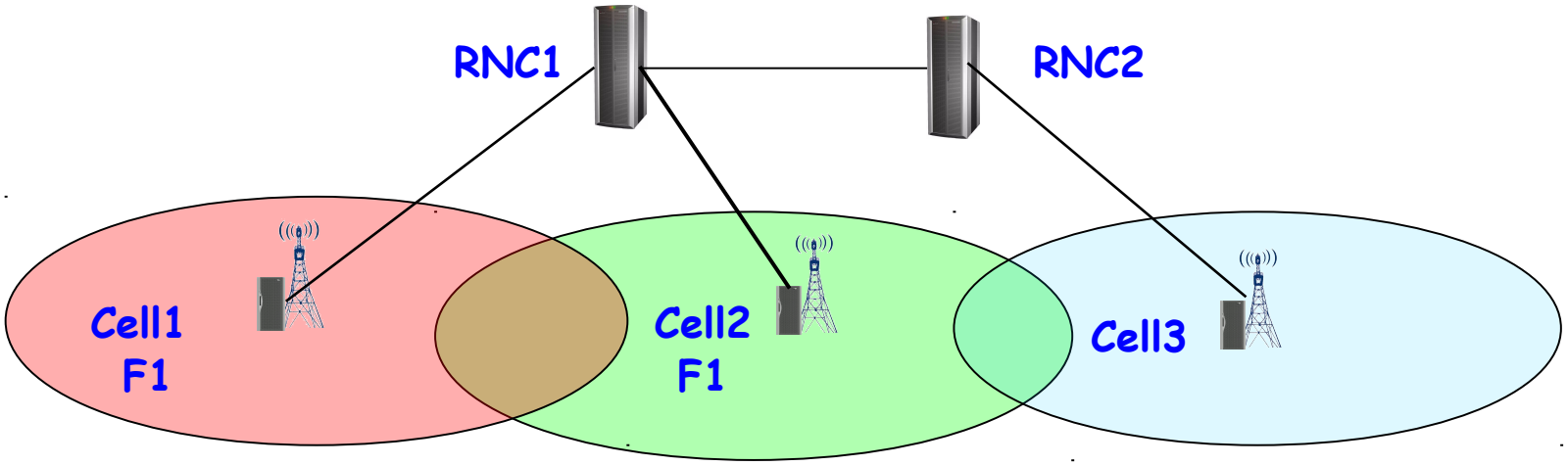
Neighboring Cell Configuration

- UE can do cell handover and cell reselection between cells after configuring neighboring cell.
- Neighboring cell relationship is bidirectional.
- Depending on cell frequency, neighboring cell can be divided to intra-frequency neighboring cell, inter-frequency neighboring cell and GSM neighboring cell.
- Neighboring cell parameters are supplied by network planning person.

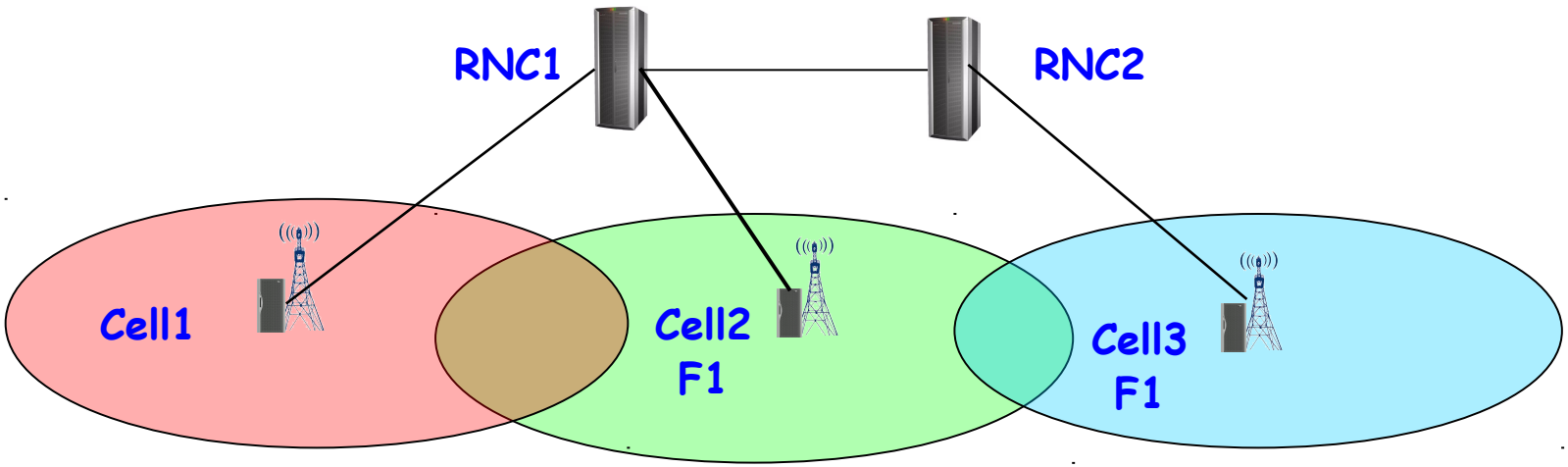
Neighboring Cell Configuration

- Adding Intra-frequency Neighboring Cell
  - When the neighboring cells belongs to the same RNC, for example cell1, cell2
    - **ADD UINTRAFREQNCELL**



Neighboring Cell Configuration

- Adding Intra-frequency Neighboring Cell
  - When the neighboring cell belongs to another RNC, for example cell2, cell3
    - **ADD UEXT3GCELL**
    - **ADD UNRNCURA to add the URA information of the intra-frequency neighboring BSC6900. （Optional）**
    - **ADD UINTRAFREQNCELL**

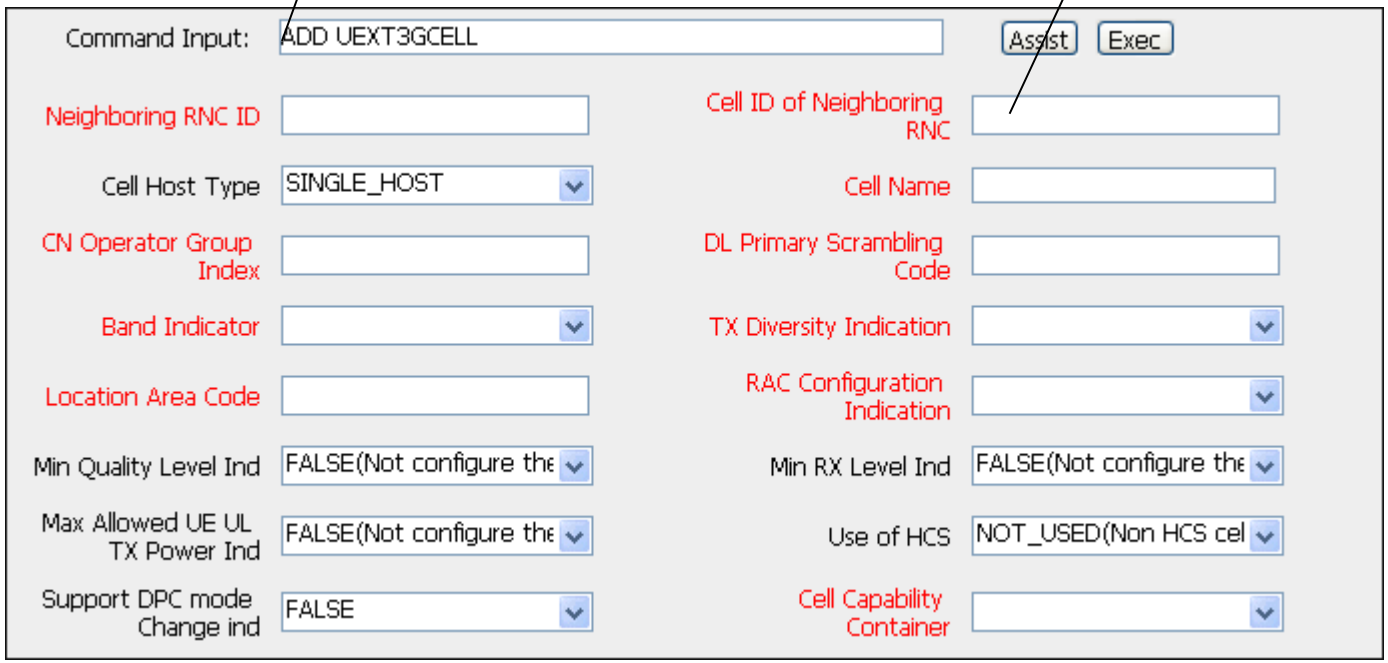


Neighboring Cell Configuration

- Commands and Parameters ： **ADD UEXT3GCELL**

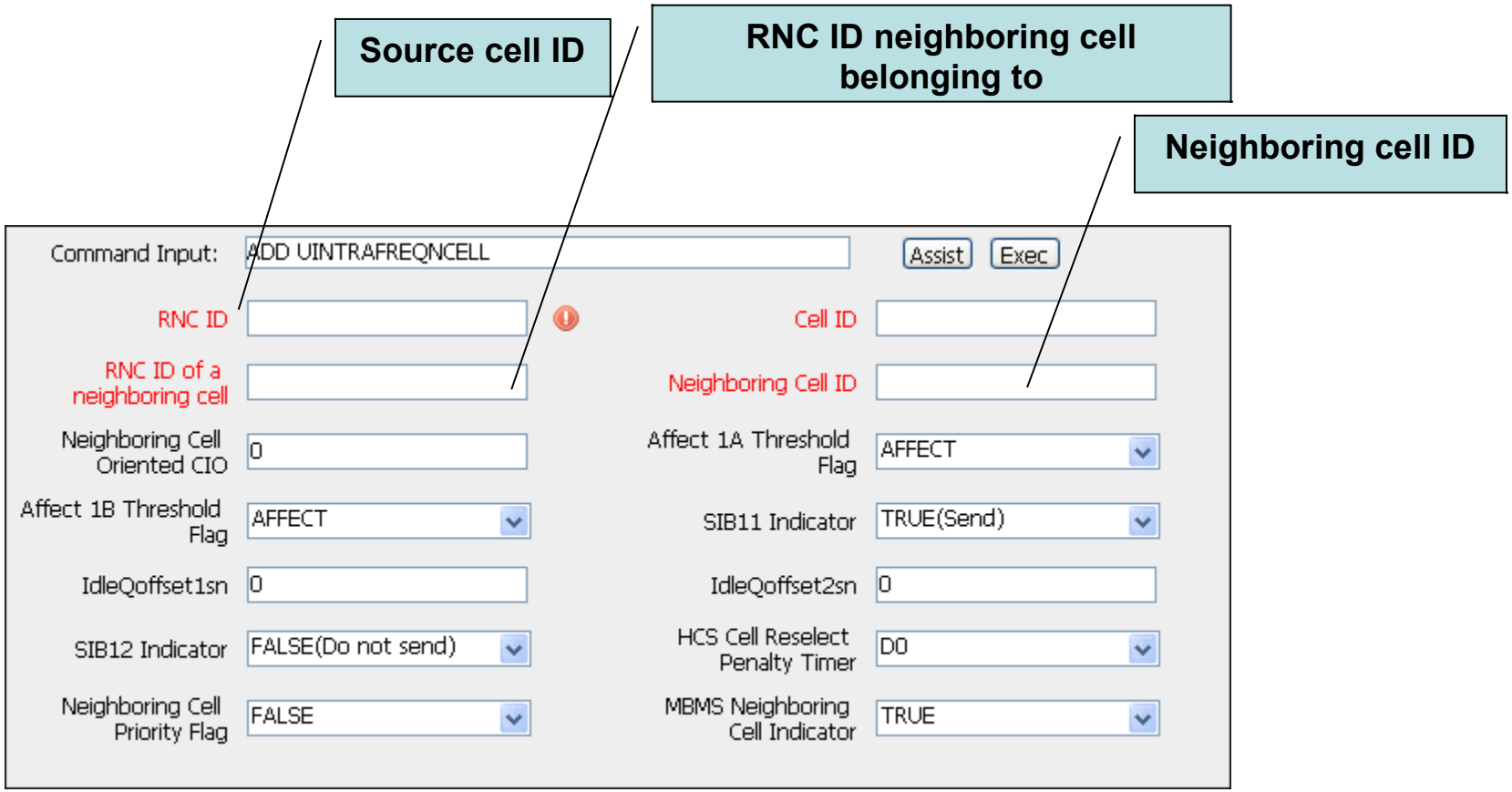
RNC ID the neighboring cell belonging to

Related parameters



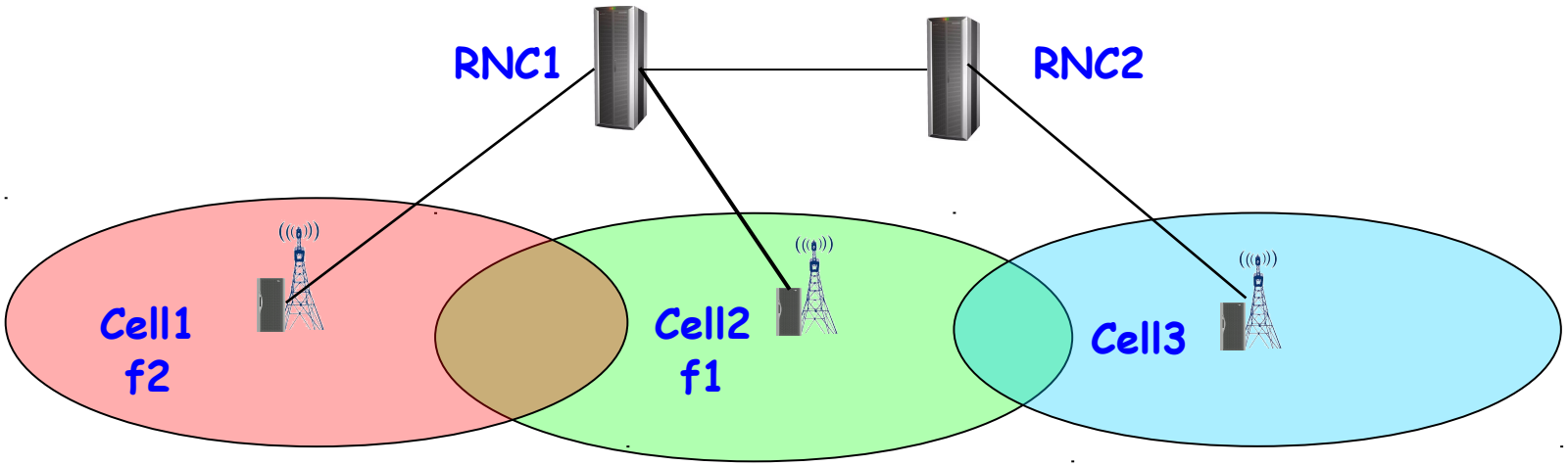
Neighboring Cell Configuration

- Commands and Parameters ： **ADD UINTRAFREQNCELL**



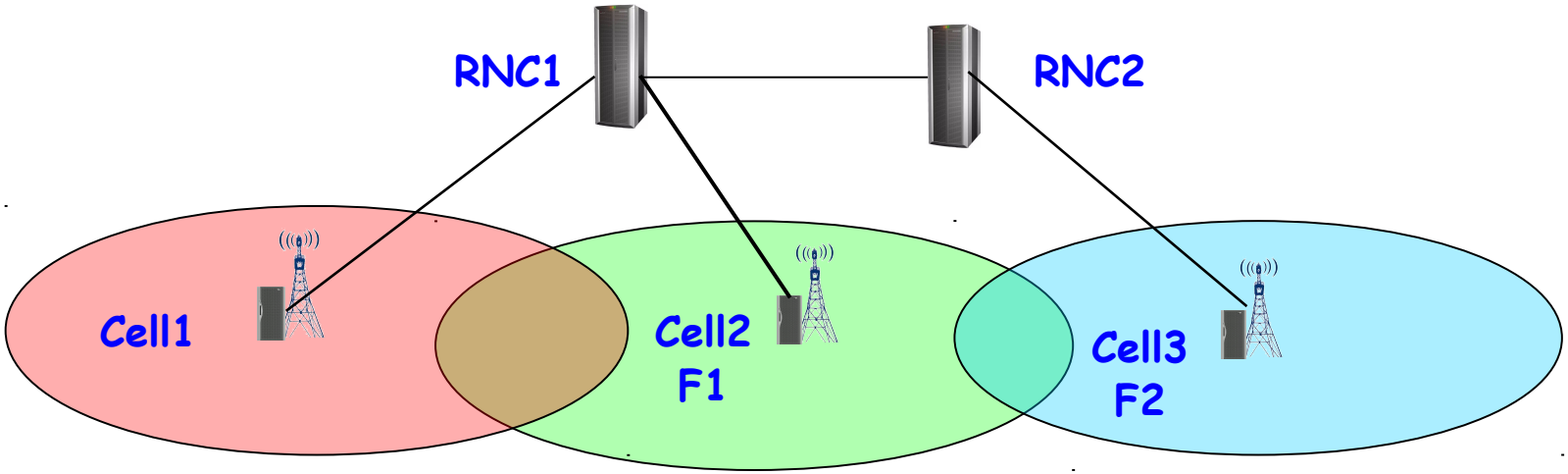
Neighboring Cell Configuration

- Adding Inter-frequency neighboring cell
  - When the neighboring cells belongs to the same RNC, for example cell1, cell2
    - **ADD UINTERFREQNCELL**



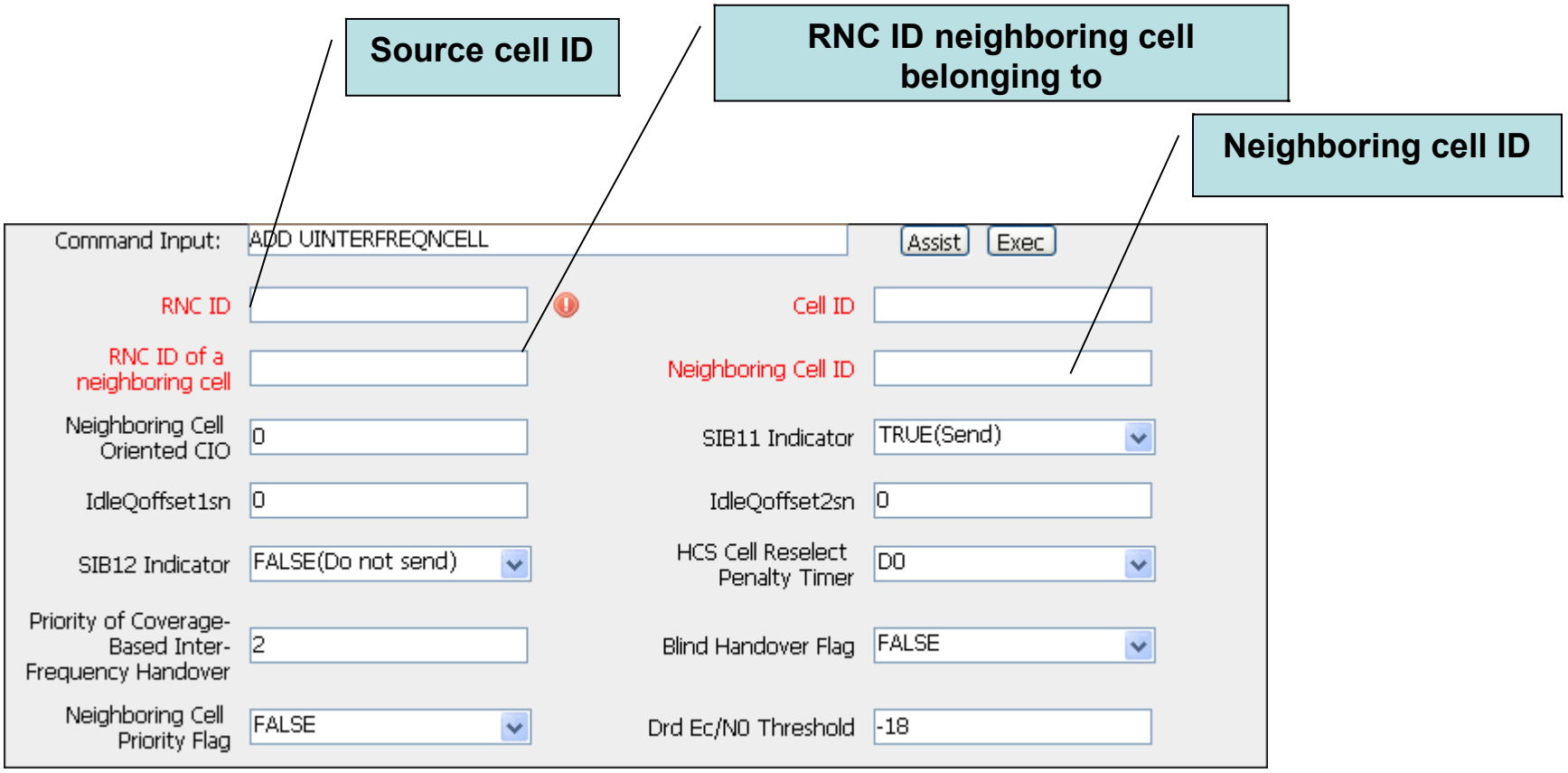
Neighboring Cell Configuration

- Adding Inter-frequency Neighboring Cell
  - When the neighboring cell belongs to another RNC, for example cell2, cell3
    - **ADD UEXT3GCELL**
    - **ADD UNRNCURA， to add the URA information of the inter-frequency neighboring BSC6900. （Optional）**
    - **ADD UINTERFREQNCELL**



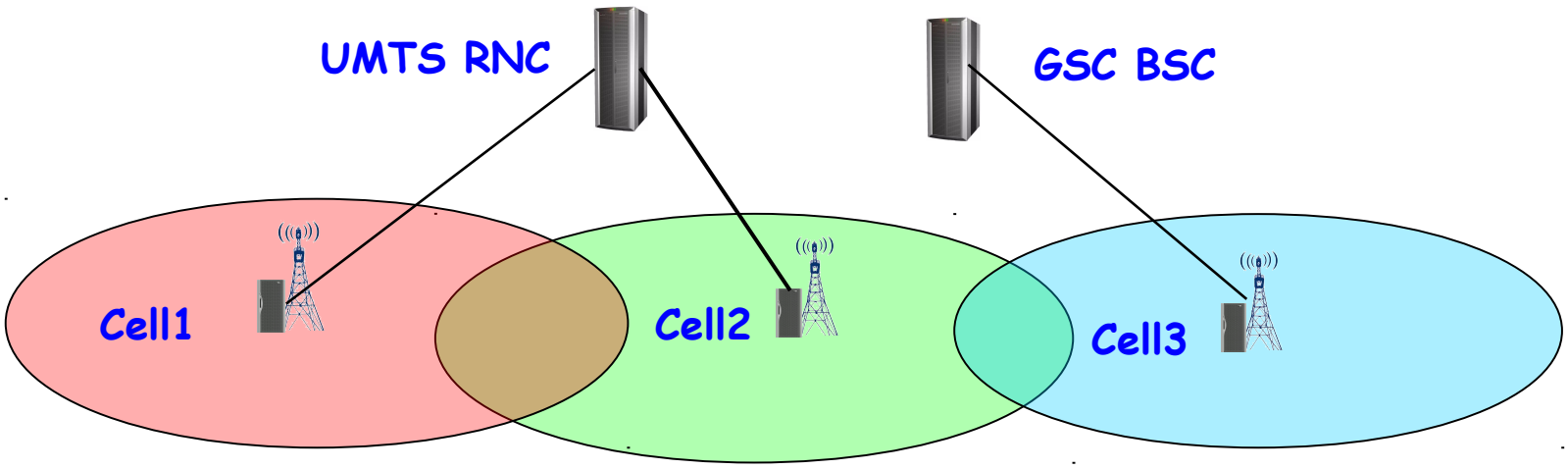
Neighboring Cell Configuration

- Commands and Parameters ： **ADD UINTERFREQNCELL**



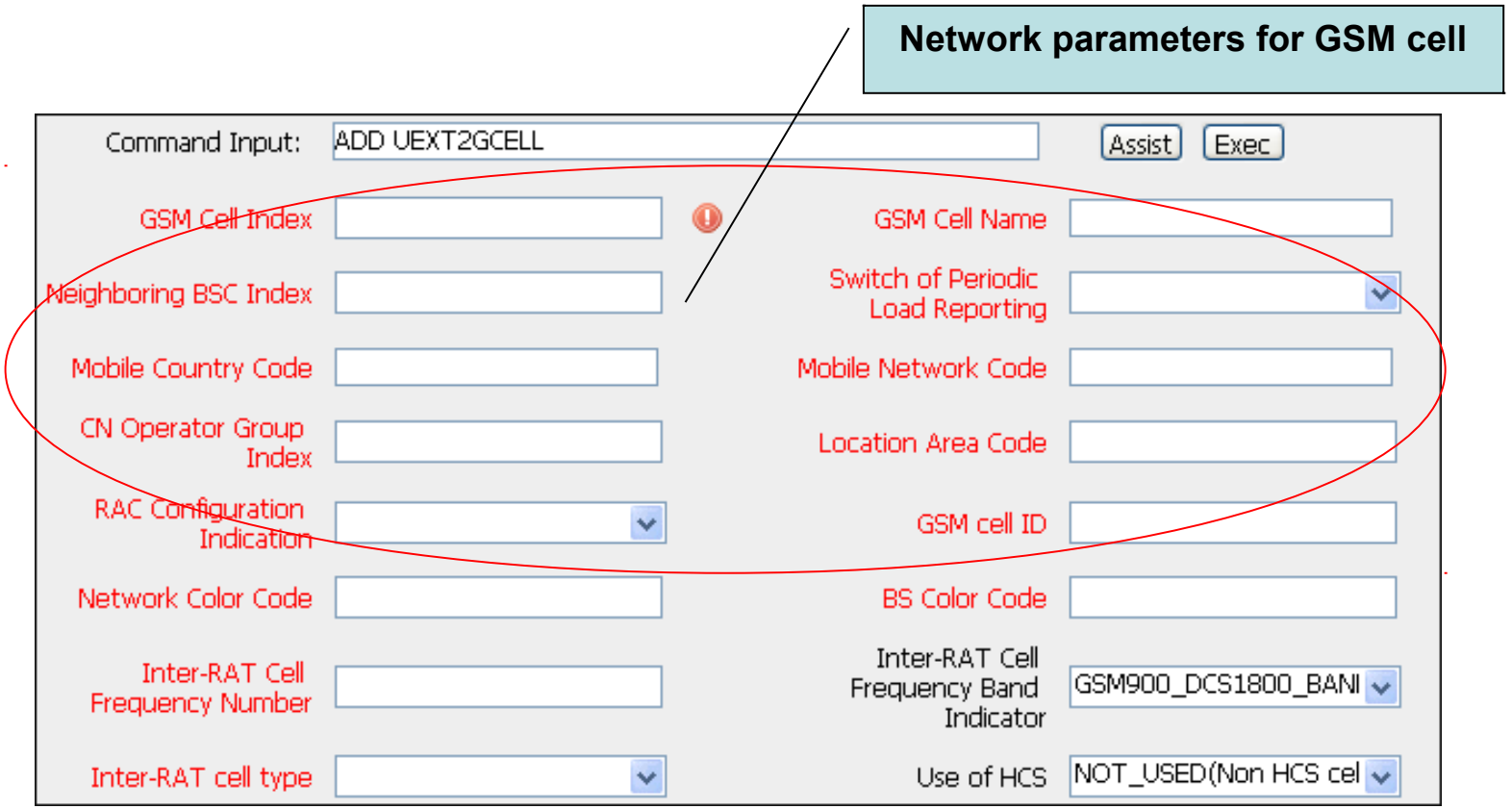
Neighboring Cell Configuration

- Adding GSM Neighboring Cell
  - **ADD UEXT2GCELL， add a GSM cell**
  - **ADD U2GNCELL， add the GSM cell as a neighboring cell of the serving cell.**



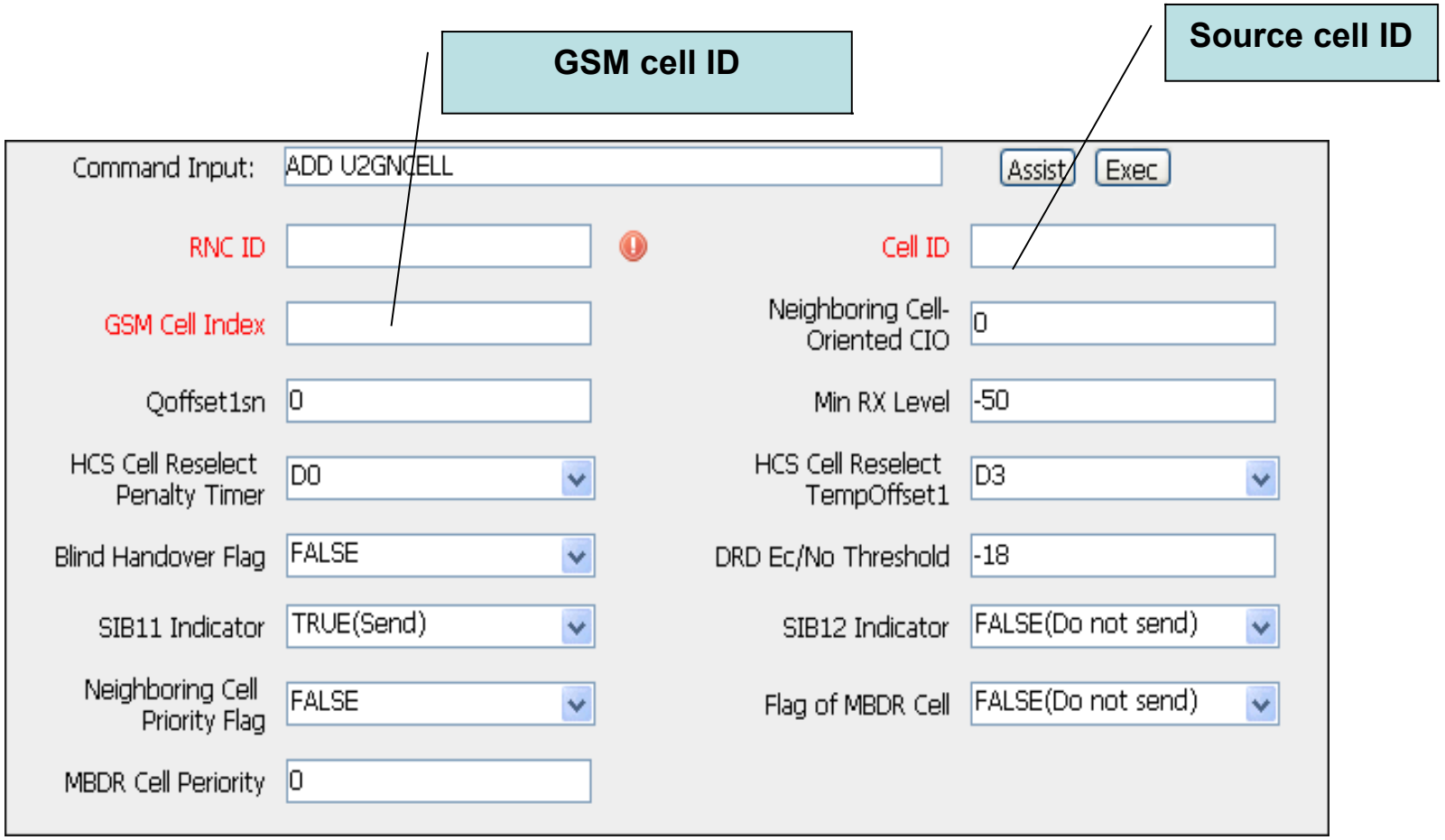
Neighboring Cell Configuration

- Commands and Parameters ： **ADD UEXT2GCELL**



Neighboring Cell Configuration

- Commands and Parameters ： **ADD U2GNCELL**



Thank you

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