



2G, 3G Network Planning and Optimization...

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Live

Эт. день	724
	195
Пт. дней	136
	47
Эт. мес	94
	11
Сегодня	8
	3
Нап. инш	79
	5

Hit



Постоянные читатели

четверг, 1 октября 2009 г.

4.5 Frequency Hopping Parameters

4.5.1 Frequency Hopping Sequence Number

I. Definition

In a GSM network, the cell allocation (CA) means the set of carriers used by each cell, recorded as {R0, R1, ..., Rn - 1}. Wherein, Ri indicates the absolute channel number. For each communication process, the set of carriers used by base station and MS is mobile allocation (MA), recorded as {M0, M1, ..., Mn - 1}. Wherein, Mi indicates the absolute channel number. Obviously MA is a subset of CA.

During a communication process, the air interface uses a carrier number, one element of MA. The variable mobile allocation index (MAI) determines an exact element of MA. According to the frequency hopping algorithm in GSM regulation 05.02, the MAI is the TDMA frame number (RN) or reduced frame number (RFN), frequency hopping sequence number (HSN), and mobile allocation index offset (MAIO).

Wherein, the HSN determines two aspects:

- Track of frequency points during frequency hopping
- The asynchronous neighbor cells using the same MA can avoid continuous frequency collision during frequency hopping by using different HSNs.

II. Format

HSN is in decimal, ranging from 0 to 63, wherein:

- 0: cyclic frequency hopping
- 1-63: pseudo frequency hopping

III. Configuration and Influence

You can choose any HSN in cells using frequency hopping, but you must ensure that the cells using same frequency group must use different HSN. The following paragraph is an exception:

In an 1X1 network, three cells under a base station use the same frequency group, but they are synchronous cells because of same FN. Therefore the three cells use the same HSN. You must plan MAIO properly to avoid frequency collision of the three cells under the same base station.

4.5.2 Mobile Allocation

I. Definition

The mobile allocation (MA) in the GSM network indicates a frequency set for frequency hopping. Namely, when the MA of a cell is fixed, the communication frequency points of the cell performs transient in the set by MA according to rules.

The parameter MA determines all the elements in MA.

II. Format

MA is a set, with all GSM frequency points as its element, namely:

- For GSM900 networks: 1-124 and 975-1023.
- For GSM1800 networks: 512-885

III. Configuration and Influence

MA is configured according to network designing requirements.

IV. Precautions

Chinese GSM networks do not cover all available frequency bands of GSM system, so configure MA in available frequency bands.

The number of elements in each MA set cannot exceed 63.

The MA cannot include BCCH carriers.

The number of MA must not be multiples of 13 if all the following conditions are met:

- Using DTX
- HSN = 0 (cyclic frequency hopping)

You must avoid SACCH to appear usually at the same frequency point.

4.5.3 Mobile Allocation Index Offset

I. Definition

During communication, the air interface uses a carrier frequency, one element of MA set. MAIO determines an exact element of MA set. According to the frequency hopping algorithm in GSM regulation 05.02, the MAI is the TDMA frame number (RN) or reduced frame number (RFN), frequency hopping sequence number (HSN), and mobile allocation index offset (MAIO). MAIO is an initial offset of MAI, and it aims to avoid multiple channels to use the same frequency carrier in the same time.

II. Format

MAIO ranges from 0 to 63.

III. Configuration and Influence

MAIO is configured by equipment room operators.

IV. Precautions

The different cells using same group of MA must use consistent MAIO.

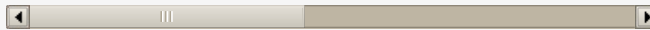
Using different MAIOs enables different sectors in the same location to use the same frequency group (MA) without frequency collision.

Автор: ourdot на 1:12

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