

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

# Экономия бензина

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## **Archives**

#### **2009 (56)**

- ▼ Октябрь (15)
  - 5.5 Network Problem Solutions 5.5.1 Coverage Pr...
  - 5.4 Traffic Statistics Index Analysis At the n...
  - 5.3 Network Performance Evaluation Before putt...
  - 5.2 Network Optimization Tools 5.2.1 Test MS...
  - 5 GSM Radio Network Optimization Radio network
  - 4.10 Systematic Important Timers 4.10.1 T3101...
  - 4.9 Power Control and Related Parameters 4.9.1 ...
  - 4.8 Handover and Related Parameters 4.8.1 PBGT

# 4.7 Radio Link Failure Process and Parameters ...

- 4.6 Distance Control Parameters 4.6.1 Call Cl...
- 4.5 Frequency Hopping Parameters 4.5.1 Freque...
- 4.4 Parameters Affecting Network Functions 4.4...
- 4.3 Serial Parameters of Cell Selection and Res...
- 4.2 Paging and Access Control Parameters 4.2.1  $\dots$
- 4 GSM Parameter Configuration and AdjustmentWhen o...
- Сентябрь (41)

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# Постоянные читатели

четверг, 1 октября 2009 г.

# 4.7 Radio Link Failure Process and Parameters

The radio link failure is detected from uplink and downlink. The MS completes downlink detection, while the base station completes uplink detection.

## 4.7.1 Radio Link Failure Counter (RLC or Radio Link Timeout)

#### I. Definition

The MS originates call resetup or disconnects by force if all the following conditions are met:

- The voice or data quality is too poor to be received.
- Power control and handover cannot help to improve the quality.

A disconnection by force actually brings about a call drop, so the MS considers it a radio link failure that the voice or data service is actually too poor to be received. GSM regulations provide solutions to the previous problems as follows:

Set a counter S in the MS. The initial value of S is provided at the beginning of talk, and it is the value of the parameter radio link failure counter. S changes as follows:

- S decreases by 1 if the MS fails in decoding a correct SACCH message when the MS should receive the SACCH message.
- S increases by 2 if the MS succeed in decoding a correct SACCH message.

S cannot exceed the value for radio link failure counter. When S equals to 0, the MS originates call resetup or disconnects by force.

#### II. Format

The step from 4 to 64 is 4, with unit of SACCH period as follows:

- For TCH, the SACCH period is 480ms.
- For SDCCH, the SACCH period is 470ms.

## III. Configuration and Influence

The value of the parameter radio link failure counter affects CDR and utilization of radio resources.

Assume that cell A is a neighbor cell to cell B and the bordering coverage is poor. When an MS moves from P to Q while in talk,

- If the radio link failure counter is over small, call drop occurs before cross-cell handover.
- If the radio link failure counter is over great, the network releases related resources until radio link expires, though the voice quality is too poor when MS camps on cell B near P. Therefore, the utilization of radio resources declines.

Proper configuration of radio link failure counter is important, and is related to the actual situations. To configure radio link failure counter, refer to the following rules:

- Configure it to between 52 and 64 in areas with over low traffic.
- Configure it to between 36 and 48 in areas with low traffic and great coverage radium
- Configure it to between 20 and 32 in areas with heavy traffic.

## IV. Precautions

Configure radioLinkTimeout to smaller than T3109. This contributes to success of call resetup and avoids the following situation effectively:

Before the MS releases radio resources due to expiration, the network side completes releasing channels resources and reallocates resources to other MSs. Therefore two MSs might use the same slot and this causes interferences even call drop.

## 4.7.2 SACCH Multiframe (RLTO BS)

# I. Definition

Refer to the description of radio link failure counter. A counter is set accordingly to radio link at base station side for managing radio link failures. The solutions vary due to different equipment providers, but a general method is as follows:

Set a counter S in the base station. The initial value of S is provided at the beginning of talk, and it is the value of the parameter radio link failure expiration. S changes as follows:

- S decreases by 1 if the MS fails in decoding a correct SACCH message when the MS should receive the SACCH message.
- S increases by 2 if the MS succeed in decoding a correct SACCH message.

S cannot exceed the value for radio link expiration of base station. When S equals to 0, the MS originates call resetup or disconnects by force, as shown in Figure 1-5.

## II. Format

RLT0\_BS ranges from 4 to 64.

# III. Configuration and Influence

Proper configuration of radio link expiration of base station affects CDR and utilization of radio resources. It is related to the actual situations. To configure radio link failure counter, refer to the following rules:

- Configure it to between 52 and 64 in areas with over low traffic.
- Configure it to between 36 and 48 in areas with low traffic and great coverage radium
- Configure it to between 20 and 32 in areas with heavy traffic.
- Configure it to a greater value in areas with apparent voids or where call drop occurs frequently while the MS moves.

Предыдущее

## **IV. Precautions**

RLTO BS and RLC must be consistent.

Автор: ourdot на 1:15

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