



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

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Live

Эт. день	724 195
От дней	136 47
Эч. месяц	94 11
Сегодня	26 3
Наплыв	94 4

Hit



Постоянные читатели

четверг, 1 октября 2009 г.

4.9 Power Control and Related Parameters

4.9.1 Maximum Transmit Power of MS (MSTXPWRMX)

I. Definition

The transmit power of MS in communication is controlled by BTS. According to the uplink signal strength and quality, power budget result, the BTS controls MS to increase or decrease its transmit power.

Note:

In any situation, power control is prior to related handover for BSS. Only when the BSS fails to improve uplink signal strength and voice quality to the prescribed level, it starts handover.

To reduce interference between neighbor cells, the power control of MS is restricted. Namely, the BTS controls MS to transmit power within the threshold.

MSTXPWRMX is the maximum transmit power of MS controlled by BTS.

II. Format

MSTXPWRMX ranges from 0 to 31.

The dBm values corresponding to GSM900 and GSM1800 cells are different:

- The 32 maximum transmit power control classes for GSM900 are {39, 39, 39, 37, 35, 33, 31, 29, 27, 25, 23, 21, 19, 17, 15, 13, 11, 9, 7, 5, 5, 5, 5, 5, 5, 5, 5, 5, 5, 5, 5, 5}
- The 32 maximum transmit power control classes for GSM1800 are {30, 28, 26, 24, 22, 20, 18, 16, 14, 12, 10, 8, 6, 4, 2, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 36, 34, 32}

III. Configuration and Influence

Configuring MSTXPWRMX helps control interferences between neighbor cells, because:

- If MSTXPWRMX is over great, the interference between neighbor cells increases.
- If MSTXPWRMX is over small, the voice quality declines and improper handover might occur.

4.9.2 Received Level Threshold of Downlink Power Increment (LDR)

I. Definition

When the downlink received level of the serving cell is smaller than a threshold, the network must start power control to increase the transmit power of base station and to guarantee communication quality of MS.

The received level threshold of downlink power increment defines the downlink received level threshold. When the downlink level received by MS is smaller than it, the base station starts power control to increase its transmit power.

The parameter N1 means that at least N1 sampling points must be measured before starting handover algorithm.

The parameter P1 means the level of at least P1 sampling points in N1 sampling points is smaller than the threshold prescribed by received level threshold of downlink power increment.

II. Format

It ranges from -110 dBm to -47 dBm.

N1 ranges from 1 to 32.

P1 ranges from 1 to 32.

III. Configuration and Influence

The received level is between -60 dBm and -80 dBm in a GSM network, so configure received level threshold of downlink power increment to -85 dBm.

N1 is related to propagation quality of radio channels within cell coverage range. To reduce influence by attenuation, configure N1 to between 3 and 5.

Configure P1 to about 2/3 of N1.

4.9.3 Received Level Threshold of Uplink Power Increment (LUR)

I. Definition

When the uplink received level of the serving cell is smaller than a threshold, the network must start power control to increase the transmit power of MS and to guarantee communication quality of MS.

The received level threshold of uplink power increment defines the uplink received level threshold. When the uplink level received by MS is smaller than it, the base station starts power control to increase MS transmit power.

The parameter N1 means that at least N1 sampling points must be measured before starting handover algorithm.

The parameter P1 means the level of at least P1 sampling points in N1 sampling points is smaller than the threshold prescribed by received level threshold of uplink power increment.

II. Format

It ranges from -110 dBm to -47 dBm.

N1 ranges from 1 to 32.

P1 ranges from 1 to 32.

III. Configuration and Influence

The received level is between -60 dBm and -80 dBm in a GSM network, so configure received level threshold of uplink power increment to -85 dBm.

N1 is related to propagation quality of radio channels within cell coverage range. To reduce influence by attenuation, configure N1 to between 3 and 5.

Configure P1 to about 2/3 of N1.

4.9.4 Received Quality Threshold of Downlink Power Increment (LDR)

I. Definition

When the downlink received quality of the serving cell is smaller than a threshold, the network must start power control to increase the transmit power of base station and to guarantee communication quality.

The received quality threshold of downlink power increment defines the downlink received level threshold. When the downlink quality received by MS is smaller than it, the base station starts power control to increase its transmit power.

The parameter N3 means that at least N3 sampling points must be measured before starting handover algorithm.

The parameter P3 means the quality of at least P3 sampling points in N3 sampling points is smaller than the threshold prescribed by received quality threshold of downlink power increment.

II. Format

It ranges from 0 to 7, the voice quality grade.

N3 ranges from 1 to 32.

P3 ranges from 1 to 32.

III. Configuration and Influence

The received quality is 0 to 2 of quality grade in a GSM network, so configure received quality threshold of downlink power increment to -85 dBm.

N3 is related to propagation quality of radio channels within cell coverage range. To reduce influence by attenuation, configure N3 to between 3 and 5.

Configure P3 to about 2/3 of N3.

4.9.5 Received Quality Threshold of Uplink Power Increment (LUR)

I. Definition

When the uplink received quality of the serving cell is smaller than a threshold, the network must start power control to increase the transmit power of MS and to guarantee communication quality.

The received quality threshold of uplink power increment defines the uplink received quality threshold. When the uplink quality received by MS is smaller than it, the base station starts power control to increase transmit power of MS.

The parameter N3 means that at least N3 sampling points must be measured before starting handover algorithm.

The parameter P3 means the quality of at least P3 sampling points in N3 sampling points is smaller than the threshold prescribed by received quality threshold of uplink power increment.

II. Format

It ranges from 0 to 7, the voice quality grade.

N3 ranges from 1 to 32.

P3 ranges from 1 to 32.

III. Configuration and Influence

The received quality is 0 to 2 of quality grade in a GSM network, so configure received quality threshold of uplink power increment to 3.

N3 is related to propagation quality of radio channels within cell coverage range. To reduce influence by attenuation, configure N3 to between 3 and 5.

Configure P3 to about 2/3 of N3.

4.9.6 Received Level Threshold of Downlink Power Decrement (UDR)

I. Definition

When the downlink received level of the serving cell is greater than a threshold, the network must start power control to decrease the transmit power of base station and to decrease interference to radio channels.

The received level threshold of downlink power decrement defines the downlink received level threshold. When the downlink level received by MS is greater than it, the base station starts power control to decrease its transmit power.

The parameter N2 means that at least N2 sampling points must be measured before starting handover algorithm.

The parameter P2 means the level of at least P2 sampling points in N2 sampling points is greater than the threshold prescribed by received level threshold of downlink power decrement.

II. Format

It ranges from -110 dBm to -47 dBm.

N1 ranges from 1 to 32.

P1 ranges from 1 to 32.

III. Configuration and Influence

The received level is between -60 dBm and -80 dBm in a GSM network, so configure received level threshold of downlink power decrement to -85 dBm.

N2 is related to propagation quality of radio channels within cell coverage range. To reduce influence by attenuation, configure N2 to between 3 and 5.

Configure P2 to about 2/3 of N2.

4.9.7 Received Level Threshold of Uplink Power Decrement (UUR)

I. Definition

When the uplink received level of the serving cell is greater than a threshold, the network must start power control to decrease the transmit power of MS and to decrease interference to radio channels.

The received level threshold of uplink power decrement defines the uplink received level threshold. When the uplink level received by MS is greater than it, the base station starts power control to decrease transmit power of MS.

The parameter N2 means that at least N2 sampling points must be measured before starting handover algorithm.

The parameter P2 means the level of at least P2 sampling points in N2 sampling points is greater than the threshold prescribed by received level threshold of uplink power decrement.

II. Format

It ranges from -110 dBm to -47 dBm.

N2 ranges from 1 to 32.

P2 ranges from 1 to 32.

III. Configuration and Influence

The received level is between -60 dBm and -80 dBm in a GSM network, so configure received level threshold of uplink power decrement to -60 dBm.

N2 is related to propagation quality of radio channels within cell coverage range. To reduce influence by attenuation, configure N2 to between 3 and 5.

Configure P2 to about 2/3 of N2.

4.9.8 Received Quality Threshold of Downlink Power Decrement (UDR)

I. Definition

When the downlink received quality of the serving cell is greater than a threshold, the network must start power control to decrease the transmit power of base station and to decrease space interference.

The received quality threshold of downlink power decrement defines the downlink received quality threshold. When the downlink quality received by MS is greater than it, the base station starts power control to decrease transmit power of MS.

The parameter N4 means that at least N4 sampling points must be measured before starting handover algorithm.

The parameter P4 means the quality of at least P4 sampling points in N2 sampling points is greater than the threshold prescribed by received quality threshold of downlink power decrement.

II. Format

It ranges from 0 to 7, the voice quality grade.

N4 ranges from 1 to 32.

P4 ranges from 1 to 32.

III. Configuration and Influence

The received quality is 0 to 2 of quality grade in a GSM network, so configure received quality threshold of downlink power decrement to 0.

N4 is related to propagation quality of radio channels within cell coverage range. To reduce influence by attenuation, configure N4 to between 3 and 5.

Configure P4 to about 2/3 of N4.

4.9.9 Received Quality Threshold of Uplink Power Decrement (UUR)

I. Definition

When the uplink received quality of the serving cell is greater than a threshold, the network must start power control to decrease the transmit power of MS and to decrease space interference.

The received quality threshold of uplink power decrement defines the uplink received quality threshold. When the uplink quality received by MS is greater than it, the base station starts power control to decrease transmit power of MS.

The parameter N4 means that at least N4 sampling points must be measured before starting handover algorithm.

The parameter P4 means the quality of at least P4 sampling points in N4 sampling points is greater than the threshold prescribed by received quality threshold of uplink power decrement.

II. Format

It ranges from 0 to 7, the voice quality grade.

N4 ranges from 1 to 32.

P4 ranges from 1 to 32.

III. Configuration and Influence

The received quality is 0 to 2 of quality grade in a GSM network, so configure received quality threshold of uplink power decrement to 0.

N4 is related to propagation quality of radio channels within cell coverage range. To reduce influence by attenuation, configure N4 to between 3 and 5.

Configure P4 to about 2/3 of N4.

4.9.10 Power Control Interval (INT)

I. Definition

It takes a period from beginning of power control to detection of effect of power control. Therefore an interval must exist between continuous two power controls; otherwise the system becomes unstable and even call drop occurs.

The parameter power control interval (INT) configures the minimum interval between two continuous times of power control.

II. Format

It ranges from 0 to 31s.

III. Configuration and Influence

According to frame structure of GSM network, configure INT to about 3s.

IV. Precautions

INT cannot be smaller than 1s, and otherwise the system becomes unstable.

4.9.11 Power Increment Step (INC)

I. Definition

The INC indicates the power increment of MS or base station in power control.

II. Format

The range of INC is 2 dB, 4 dB, or 6 dB.

III. Configuration and Influence

The recommended value is 4 dB.

4.9.12 Power Decrement Step (RED)

I. Definition

The RED indicates the power decrement of MS or base station in power control.

II. Format

The range of RED is 2 dB or 4 dB.

III. Configuration and Influence

The recommended value of RED is 2 dB.

Автор: ourdot на 1:20

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