Project	**IEEE 802.16 Broadband Wireless Access Working Group <http://ieee802.org/16>**
Title	Corrections and clarifications on periodic ranging process.
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Re:	IEEE P802.16-2004/Cor1/D3
Abstract	This contribution proposes some corrections and clarifications on the description of scheduling services
Purpose	Adopt changes.
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Corrections and clarifications on periodic ranging.

Joël Demarty (SEQUANS Communications)

1. Introduction

In 802.16-2004, the description of the periodic ranging process has some ambiguities that need to be clarified:

1) the text describing what the SS is supposed to do when it receives a bandwidth grant is rather ambiguous.
Does the SS need to send a RNG-REQ in every burst after the last RNG-RSP continue or only the first one after it ?
When the last status is continue and after transmitting a RNG-REQ, does the SS have the right to use the remaining bandwidth to service its uplink data queues?

2) Fast Power Control message and Power Control IE as similar in essence to RNG-REQ with corrections (status=continue).
However there is no mention of these ranging messages in the paragraph addressing the uplink periodic ranging process.

3) The standard has the notion of invited ranging opportunities however it is not clear that in periodic ranging the BS has the right to use invited ranging opportunities (initial ranging IE addressed to the SS basic CID). It's implicitely allowed in the BS FSMs (figure 82 & 83) but it's not mentioned on the SS side (figure 84).

2. Text changes

[Page 52, line 5 add the following text]

6.3.10.2 Uplink periodic ranging

Modify the 1st point as indicated

1) For each SS, the BS shall maintain a T27 timer. At each expiration of the timer, the BS shall grant bandwidth to the SS for an uplink transmission in the form of a data grant or an invited ranging opportunity. The timer is restarted each time a unicast grant is made to the SS. As a result, as long as the SS remains active, the BS does not specifically grant bandwidth to the SS for a ranging opportunity.

Modify the 6th point as indicated

6) The SS shall respond to each uplink bandwidth grant addressed to it. When the status of the last RNG-RSP message received is continue, the RNG-REQ message shall be included in the transmitted burst the SS shall not use the data grant to service its uplink connections except to transmit a RNG-REQ message. When the status of the last RNG-RSP message received is success, the SS

shall use the grant to service its pending uplink data queues. If no data is pending, the SS shall respond to the grant by transmitting a block of padded data.

Add a 7th point as indicated

7) When the SS cannot apply a correction, it shall send a RNG-REQ reporting the anomaly in the next data grant or invited ranging opportunity.

Replace figure 84 with the following figure