Project	**IEEE 802.16 Broadband Wireless Access Working Group <http://ieee802.org/16>**
Title	**Errata - Missed Edits Relating to Service Parameters**
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Re:	Call for Contributions on Project 802.16d: IEEE Standard 802.16: 2-11 GHz System Profiles and Corrections of Errors in Base Standard. 18 Dec. 2002. **Errata** in IEEE 802.16a or 802.16c, or those **in 802.16 not corrected in 802.16a or 802.16c**.
Abstract	German Madinabeitia Luque noted the use of obsolete parameters and parameters names in the base specification. These errors were not corrected in either 802.16a or 802.16c.
Purpose	Point out the erroneous text that should be corrected by the 802.16d amendment to 802.16.
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Errata - Missed Edits Relating to Service Parameters

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Background

Quite some time ago, the original QoS and traffic description parameters for services were renamed and/or replaced with ones that more closely aligned with ATM, even though 802.16 is not an ATM system, because ATM has a mature QoS handling scheme, and has developed service description parameters well suited to providing QoS. However, some of the necessary edits were missed in section 6.2.5, as pointed out by German Madinabeitia Luque.

The text in question was not modified by either 802.16a nor 802.16c.

Necessary Edits

The following edits should be made to make the corrections:

6.2.5.1 Unsolicited Grant Service

The Unsolicited Grant Service (UGS) is designed to support real-time service flows that generate fixed size data packets on a periodic basis, such as T1/E1 and Voice over IP without silence suppression. The service offers fixed size grants on a real-time periodic basis, which eliminate the overhead and latency of SS requests and assure that grants are available to meet the flow's real-time needs. The BS shall provide ~~fixed~~sufficiently ~~size~~ sized Data Grant Burst ~~Types~~ IEs to the SS at periodic intervals based upon the Minimum reserved Traffic Rate of ~~to~~ the service flow. In order for this service to work correctly, the Request/Transmission Policy (see 11.4.8.12) setting shall be such that the SS is prohibited from using any contention request opportunities~~, and the BS shall not provide any unicast request opportunities for that connection. This results in the SS only using unsolicited Data Grant Burst Types for uplink transmission on that connection. All other bits of the Request/Transmission Policy are irrelevant to the fundamental operation of this scheduling service and should be set according to network policy. The~~ The key service information elements are ~~UGS shall be specified using the following parameters:~~ the ~~Unsolicited Grant Size, the Nominal Grant Interval~~Minimum Reserved Traffic Rate, the Tolerated ~~Grant~~ Jitter, and the Request/Transmission Policy.

The Grant Management subheader (6.2.2.2.2) is used to pass status information from the SS to the BS regarding the state of the UGS service flow. The most significant bit of the Grant Management field is the Slip Indicator (SI) bit. The SS shall set this flag once it detects that this service flow has exceeded its transmit queue depth. Once the SS detects that the service flow's transmit queue is back within limits, it shall clear the SI flag. The flag allows the BS to provide for long term compensation for conditions, such as lost maps or clock rate mismatches, by issuing additional grants. The poll-me bit (6.2.6.4.3) may be used to request to be polled for a different, non-UGS connection.

The BS shall not allocate more bandwidth than the Maximum Sustained Traffic Rate parameter of the Active QoS Parameter Set, excluding the case when the SI bit of the Grant Management field is set. In this case, the BS may grant up to 1% additional bandwidth for clock rate mismatch compensation.

6.2.5.2 Real-Time Polling Service

The Real-Time Polling Service (rtPS) is designed to support real-time service flows that generate variable size data packets on a periodic basis, such as MPEG video. The service offers real-time, periodic, unicast request opportunities, which meet the flow's real-time needs and allow the SS to specify the size of the desired grant. This service requires more request overhead than UGS, but supports variable grant sizes for optimum data transport efficiency.

The BS shall provide periodic unicast request opportunities. In order for this service to work correctly, the Request/Transmission Policy setting (see 11.4.8.12) shall be such that the SS is prohibited from using any

contention request opportunities for that connection. The BS may issue unicast request opportunities as prescribed by this service even if a grant is pending. This results in the SS using only unicast request opportunities in order to obtain uplink transmission opportunities (the SS could still use unsolicited Data Grant Burst Types for uplink transmission as well). All other bits of the Request/Transmission Policy are irrelevant to the fundamental operation of this scheduling service and should be set according to network policy. The key service information elements are the ~~Nominal Polling Interval, the Tolerated Poll Jitter~~ Maximum Sustained Traffic Rate, the Minimum reserved Traffic Rate, and
the Request/Transmission Policy.

6.2.5.3 Non-Real-Time Polling Service
The Non-Real-Time Polling Service (nrtPS) is designed to support non real-time service flows that require variable size Data Grant Burst Types on a regular basis, such as high bandwidth FTP. The service offers unicast polls on a regular basis, which assures that the flow receives request opportunities even during network congestion. The BS typically polls nrtPS CIDs on an interval (periodic or non-periodic) on the order of one second or less.

The BS shall provide timely unicast request opportunities. In order for this service to work correctly, the Request/Transmission Policy setting (see 11.4.8.12) should be such that the SS is allowed to use contention request opportunities. This results in the SS using contention request opportunities as well as unicast request opportunities and unsolicited Data Grant Burst Types. All other bits of the Request/Transmission Policy are irrelevant to the fundamental operation of this scheduling service and should be set according to network policy. The key service elements are ~~Nominal Polling Interval,~~ Minimum Reserved Traffic Rate, Maximum Sustained Traffic Rate, Request/Transmission Policy, and Traffic Priority.

6.2.5.4 Best Effort service
The intent of the Best Effort (BE) service is to provide efficient service to best effort traffic. In order for this service to work correctly, the Request/Transmission Policy setting should be such that the SS is allowed to use contention request opportunities. This results in the SS using contention request opportunities as well as unicast request opportunities and unsolicited Data Grant Burst Types. All other bits of the Request/ Transmission Policy are irrelevant to the fundamental operation of this scheduling service and should be set according to network policy. The key service elements are the Minimum Reserved Traffic Rate, the Maximum Sustained Traffic Rate, and the Traffic Priority.

Additionally, on page 126 of IEEE Std 820.16-2001, In foot note 12, change "Tolerated Grant Jitter" to "Tolerated Jitter", and delete the 2 lines:

if (the QoS parameter specifies a periodic interval, e.g., Nominal Grant Interval)
A is a subset of B if the parameter in A is an integer multiple of the same parameter in B