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Re:	IEEE P802.16-2004/Cor1-D3
Abstract	Corrections for CINR measurement.
Purpose	Adoption of suggested changes into IEEE P802.16-2004/Cor1-D4
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Introduction

The CINR measurement scheme in 8.4.11.3 contains some errors. We provide text to correct it.

Motivations

1. CINR measurement shall be performed to report through CQICH and REP-RSP.
   A. In the current specification, only REP-RSP is mentioned.
2. The encoding scheme defined in the subclause is only applicable to REP-RSP.
   A. However, it is not explicitly mentioned.
3. The reported CINR value shall be compensated for the preamble/pilot boosting. However, it is not explicitly mentioned.
4. The example for the CINR measurement contains some errors.
5. For the global value, we propose forgetting factors in the [1/16, 16/16].

Suggested Text changes

[Modify the text in section 8.4.11.3 as follows]

When CINR measurements are mandated by the BS, an SS shall obtain a CINR measurement (implementation-specific). From a succession of these measurements, the SS shall derive and update estimates of the mean and/or the standard deviation of the CINR, and report them via REP-RSP messages and/or report the estimate of the mean of the CINR via the fast-feedback channel (CQICH).

For the REP-RSP, the following encoding shall be used unless different encoding scheme is defined. Mean and standard deviation statistics for CINR shall be reported in units of dB. To prepare such reports, statistics shall be quantized in 1 dB increments, ranging from a minimum of –10 dB (encoded 0x00) to a maximum of 53 dB (encoded 0x3F). Values outside this range shall be assigned the closest extreme value within the scale.

The method used to estimate the CINR of a single message is left to individual implementation, but the relative and absolute accuracy of a CINR measurement shall be ±1 dB and ±2 dB, respectively. The specified accuracy shall apply to the range of CINR values starting from 3 dB below SNR of the most robust rate, to 10 dB above the SNR of the least robust rate. See Table 336.

The reported value shall represent the average CINR on non-boosted data subcarriers. Hence preamble/pilot boosting shall be compensated for in both desired signal and interference/noise calculation.

If the BS instructs CINR reporting on an AAS zone with AMC permutation, then the MS shall report the estimate of the CINR on pilot or data subcarriers that belong to slots allocated to it. In case CINR reporting on STC zone is instructed, the MS shall report the average post-combined CINR.

[Modify the following text below eq. 144]

where r[k,n] received sample n within message measured at time index k in frame units; s[k,n]the corresponding detected or pilot sample (with channel state weighting) ~~corresponding to received symbol~~ . The message time index is incremented every frame. The SS shall maintain separate message time index counters and mean CINR estimates for REP-RSP-based reports and for Fast-Feedback-based reports. When the CINR configuration is changed (i.e. CINR report configuration in a CQICH IE or REP-REQ message differ from the previous CQICH_IE or REP-REQ), the SS shall reset the corresponding message time index to zero.

[Modify the following text below eq. 146]

~~k is the time index for the message (with the initial message being indexed by k=0, the next message by k=1, etc.);~~

[Add the following text at the end of section 8.4.11.3]

The averaging parameter ($_{avg}$) may be sent as a UCD message TLV. Unless specified otherwise, the default averaging parameter ($_{avg}$) is ¼. This value shall be used for CINR and/or RSSI report through CQICH or REP-RSP. When the averaging parameter ($_{avg}$) is given to an SS through REP-REQ, this value shall only be used for deriving CINR estimates reported through REP-RSP, and can further only be changed through another REP-REQ message. An averaging parameter value sent through UCD shall not override the averaging parameter value sent in a dedicated REP-REQ message.

[Add the following entry to the end of table 353, section 11.3.1]

Default RSSI and CINR averaging parameter	ZZZ	1	Bit #0~3: Default averaging parameter $_{avg}$ for CINR measurements, in multiples of 1/16 (range [1/16, 16/16], 0x0 for 1/16, 0xF for 16/16). The default value is 0x3. Bit #4-#7: Default averaging parameter $_{avg}$ for RSSI measurements, in multiples of 1/16 (range [1/16, 16/16], 0x0 for 1/16, 0xF for 16/16). The default value is 0x3.	OFDMA