Project	**IEEE 802.16 Broadband Wireless Access Working Group <http://ieee802.org/16>**
Title	STC and SISO power levels
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Re:	
Abstract	Clarification to transmit power level in different zones
Purpose	Clarifies the transmit power level for data and pilot sub-carriers in different zones

STC and SISO power levels

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1. Problem Statement and suggested remedy

In IEEE Std 802.16e-2005 the nominal total transmitted power per symbol in a DL STC zone is required to be Num_STC_Antennas more than the nominal total transmitted power per symbol in a SISO zone. This is an unreasonable narrow constraint. We here propose to only limit the max total transmitted power in a DL STC or SISO zone for the case that dedicated pilots are not used. In addition we clarify that the pilots in a DL STC zone is boosted by 3 dB more than in a SISO zone to compensate for the reduced pilot density. Likewise we clarify the pilots in an UL STC zone is boosted by 3 dB compared to the data subcarriers also to compensate for the reduced pilot density in STC mode as compared to SISO mode.

2. Proposed Text Changes

[In Section '8.4.9.4.3 Pilot modulation']:

Modify the second paragraph according to:

In ~~the downlink and for the optional uplink tile structure~~ all permutations except uplink PUSC ~~and~~, downlink TUSC1 and the DL and UL STC permutations/modes, each pilot shall be transmitted with a boosting of 2.5 dB over the average non-boosted power of each data tone. These pilot subcarriers shall be modulated according to Equation (135).

Replace the paragraph on page 633 "In STC mode with DL PUSC ... , ignoring data boosting" with the following paragraphs:

In a DL STC zone the per pilot tone power is 5.5 dB above the per data tone power for each transmit antenna.

In a UL STC zone the per pilot tone power is 3 dB above the per data tone power for each transmit antenna.

[In Section '8.4.9.6 Zone boosting']:

Add the following paragraphs at the end of the Section 8.4.9.6 Zone boosting:

The total transmit power for any symbol in a given STC zone without dedicated pilots shall not be more than:

[Ptx_Preamble - 4.2+ 10*log10(Num_STC_Antennas)] dBm,

where Num_STC_Antennas is the number of STC antennas defined in the STC_DL_IE() and Ptx_Preamble is the total power transmitted in the preamble symbol, in dBm. Other than this requirement, the power level in the STC zones without dedicated pilots in a frame are unrelated to the power level in the non-STC zones in a frame.