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Title	UL subframe duration IE in UL-MAP
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Re:	IEEE P802.16e/D3-2004
Abstract	UL subframe duration to be included in UL-MAP in OFDMA
Purpose	"
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UL subframe duration IE in UL-MAP

Yuval Lomnitz

1.   Motivation

In order to find its UL allocation, the SS needs to know the length of the current UL zone (because of the wrap-around allocations). The calculation of this UL zone length is complex (see below) and unspecified and may cause interoperability problems. In addition it requires a two-pass compilation of the MAP. We suggest to include this information in the UL-MAP.

2.   Details

The calculation required today: Taking frame duration (from UCD), reducing RTG,TTG (from UCD), Allocation start time (from UL-MAP), dividing by OFDMA symbol duration (according to sampling frequency and CP ratio) to obtain number of OFDMA symbols. Then look for number of symbols in the UL-AAS or permutation zone. If an UL-AAS/ permutation zone exists, in the map, then the first allocations will wrap around according to AAS/ permutation zone start, and the AAS/ new permutation allocations will wrap at UL-subframe-duration (calculated above) minus AAS/ permutation zone start. Note that the number of symbols in the DL subframe is dynamic (in theory, at least), since Allocation Start time can change and known only when receiving and parsing the UL-MAP. Because of AAS zone, the parsing of UL-MAP requires two passes on the UL-MAP (first, search AAS_IE, to resolve wrap-around point position, then parse allocations before AAS_IE).

The change we propose is that the number of symbols in each zone (= the default zone, the AAS and the permutation zone), will be given in the IE that starts the zone. Specifically, the length of the default zone will be given in the UL-MAP header.

3.   Changes summary

6.3.2.3.4 Uplink map (UL-MAP) message
[add the following line after "Begin PHY Specific Section {"]

No. OFDMA symbols	8 bits	Number of OFDMA symbols in the UL subframe, before the AAS/permutation zone (OFDMA PHY only)

8.4.5.4.6 AAS IE format
[make the following change in the table]

~~OFDMA symbol offset~~ AAS zone length	8 bits	Number of OFDMA symbols in AAS zone

8.4.5.4.7 UL Zone switch IE format
[make the following change in the table]

~~OFDMA symbol offset~~ UL zone length	8 bits	Number of OFDMA symbols in this UL zone.