



RP-160994

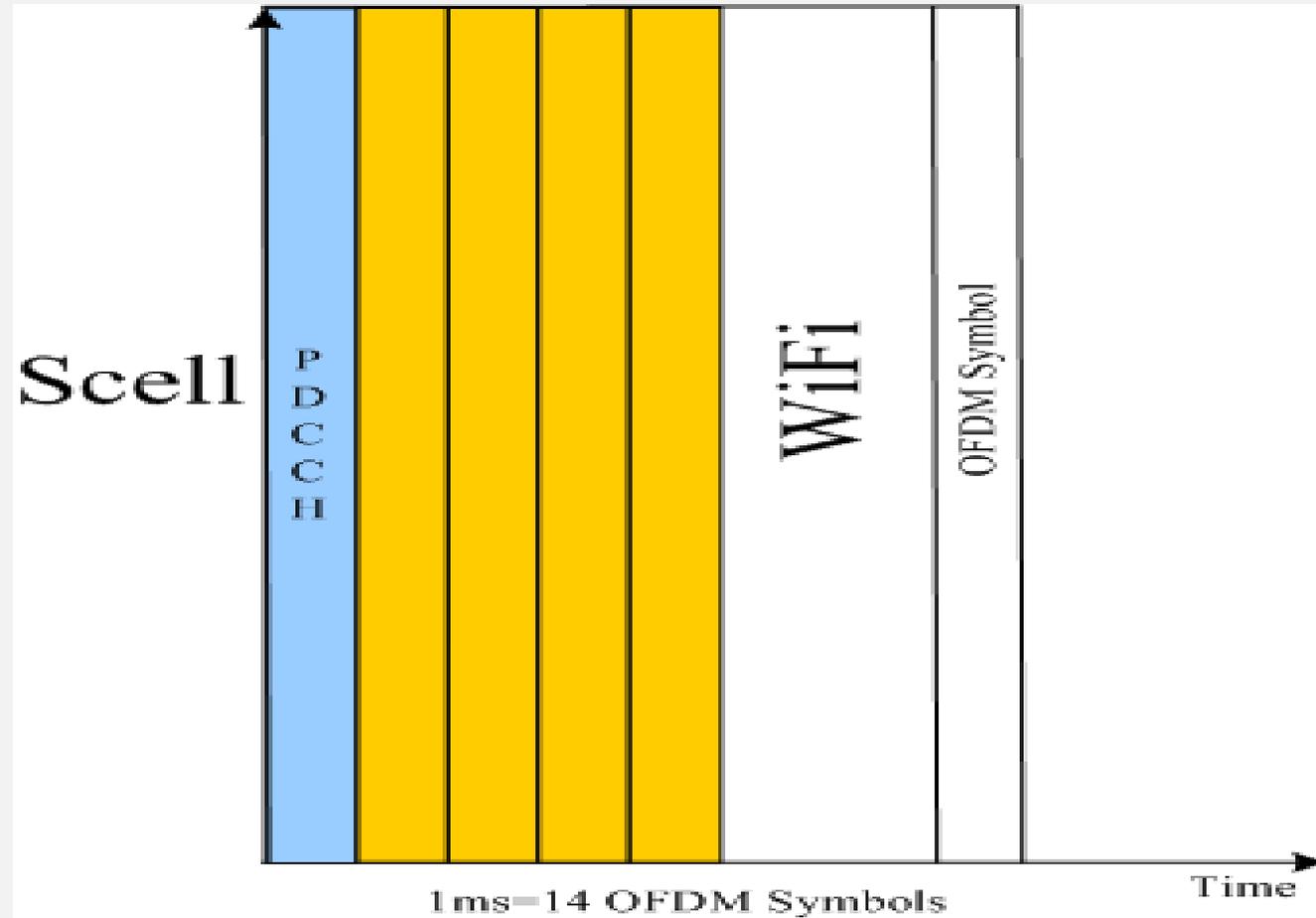
Motivation for new WI on Further Enhancements to Licensed-Assisted Access using LTE

Huawei, HiSilicon

Motivation to introduce short TTI in LAA

- **Improve the UL LAA performance**
 - In the case of self-scheduling in unlicensed carrier, PUSCH is 4ms deferred from UL grant, which means that the UE has to give up 4ms transmission resource in the UL and thus limits the UL performance. eNB could transmit 4ms DL data channels before PUSCH starts to utilize the resource, however the padding may not be able to utilize the resource sufficiently in the case of light DL traffic.
- **Improve DL/UL radio resources utilization efficiency**
 - Due to uncertain transmission opportunity, only limited starting positions for both DL and UL transmission in a subframe are permitted, which would lead to either channel reservation overhead or potentially losing the channel if self deferral is used.
- **More efficient transmission between Wi-Fi and small packet LAA**
 - Small packet LAA can be transmitted e.g., 1 OS or 2 OS, instead of 1ms, and release channels for other LAA/Wi-Fi nodes

Motivation to introduce short TTI in LAA (cont.)



Motivation to introduce wide bandwidth in LAA

- Compared with the $n \times 20\text{MHz}$ carrier aggregation, the wider bandwidth has
 - better PAPR
 - reduced UE complexity and reduced power consumption to monitor multiple carriers
- Further reduction of symbol duration and TTI with changing of sub-carrier spacing can further speed up channel access and release

Discussion on how to handle the work

- Study phase is needed for short TTI with FS3 as well as for wide bandwidth. It is also related to the ongoing Rel-14 eLAA, as they are targeting to the same use case. The proposed way to handle the work is:
 - No change to the ongoing Rel-14 eLAA WID, specify short TTI together with wide bandwidth by June 2017 (Rel-15, starting the work in Rel-14 time frame)