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SUBJECT: Liaison Statement Regarding Clarification of LBT Categories

DATE: 13 March 2015

Dear Dino and Satoshi,

It is IEEE 802's goal to establish commonly understood levels of acceptable interference and performance degradation for LAA and IEEE 802.11 networks operating in the same unlicensed channel.

We understand that 3GPP TSG-RAN is studying fairness between IEEE 802.11 and LAA networks using simulations. The simulation studies are based on 3GPP TR 36.889 v0.3.1.

IEEE 802 also thanks 3GPP for its reply (RP-150454) on 11 March 2015 to our recent liaison to 3GPP. IEEE 802 will consider RP-150454 carefully and will provide an additional follow-up liaison in the future.

At RAN1#80 in February 2015, the following agreement was made and documented in [1]:

- Classify the evaluated LBT schemes according to the following categories:
 - Category 1: No LBT
 - Category 2: LBT without random back-off
 - Category 3: LBT with random back-off with fixed size of contention window
 - Category 4: LBT with random back-off with variable size of contention window

Note: Contention window is the maximum possible random back-off value

Note: Category classification does not restrict a LBT design investigation

Note: Company is encouraged to evaluate many categories as much as possible

The presentation from 3GPP [2] at the Interim IEEE 802 meetings in January 2015 included the following text on Slide 13:

Agreed design targets:

- *Single global solution allowing compliance with any regional regulatory requirements*

- *Effective and fair coexistence with Wi-Fi*
- *Effective and fair coexistence among LAA networks deployed by different operators*

Based on the above targets, it was agreed that at least the following functionalities are required for LAA:

1. *Listen-before-talk (Clear channel assessment)*
2. *Discontinuous transmission on a carrier with limited maximum transmission duration*
3. *Dynamic Frequency Selection for radar avoidance in certain bands/regions*
4. *Carrier selection*
5. *Transmit Power Control*

Note: not all functionalities may have a spec impact; not all functionalities would be mandatory for all LAA eNBs/UEs

Request 1: Clarification or explanation is kindly requested regarding the purpose and intent of Category 1 of the LBT schemes. Please confirm that category 1 is for evaluation purposes and not as a potential access mechanism in the LAA standard.

Request 2: Does the above quoted Note (in italics) from slide 13 in [2] mean that Listen-before-talk could be defined as not mandatory in all scenarios?

The next two meetings of IEEE 802 will take place on May 11-15, 2015 in Vancouver, Canada and July 13-17, 2015 in Waikoloa, Hawaii, USA.

Regards,

/s/ Paul Nikolich
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References

[1] RP-150271, "Status Report to TSG: Study on Licensed-Assisted Access to Unlicensed Spectrum," 3GPP RAN #67, March 2015

[2] IEEE 802.19-15/0008r0, "3GPP & unlicensed spectrum," Chairman of 3GPP TSG-RAN, IEEE 802 Interim Session, Jan 11-16, 2015