**IEEE P802.19**

**Wireless Coexistence**

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| Liaison statement to 3GPP TSG-RAN | | | | |
| Date: 2015-03-11 | | | | |
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Abstract

This document proposes a liaison statement from IEEE 802 to 3GPP TSG-RAN and requests clarification regarding the LBT category 1 (termed as “No LBT”) which has recently been agreed in 3GPP RAN 1 as one of the four LBT categories for LAA LTE.

IEEE 802 LMSC

LIAISON STATEMENT TO 3GPP TSG-RAN

**TO:** Dino Flore, 3GPP TSG RAN Chair, oflore@qti.qualcomm.com

**CC:** Joern Krause, Secretary of RAN, Joern.Krause@ETSI.ORG

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Steve Shellhammer, IEEE 802.19 Coexistence WG Chair, shellhammer@ieee.org

**SUBJECT:** Liaison Statement Regarding Clarification or Explanation of LBT Categories

**DATE:**

Dear Dino,

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.

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

* Illustrative examples
  + FBE procedure as defined in EN BRAN V1.8.0 belongs to category 2
  + LBE procedure with a fixed q for the contention window as defined in EN BRAN V1.8.0 belongs to category 3
  + LBE procedure Op A with a variable q for the contention window as defined in EN BRAN V1.8.0 belongs to category 4

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

Given that LBT is considered to be required for 3GPP LAA, clarification or explanation is kindly requested regarding the purpose and intent of Category 1 of the LBT schemes.

<additional request or recommendation?>

The next meeting of IEEE 802 will take place on July 13-17, 2015 in Waikoloa, Hawaii, USA.

Regards,

/s/ Paul Nikolich

Paul Nikolich

Chairman, IEEE 802 LAN/MAN Standards Committee

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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