

IEEE 802
Local and Metropolitan Area Network Standards Committee

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SUBJECT: Review of 3GPP LAA Specification Rel. 13

DATE: 01 August 2016

Dear Dino & Satoshi,

Thank you once again for supporting the ongoing cooperation over the last year or so between IEEE 802 and 3GPP RAN/RAN1 in relation to coexistence issues between LAA and 802.11 systems. This cooperation will hopefully ensure the various versions of LAA are designed in such a way that 802.11 and LAA systems will coexist fairly in unlicensed spectrum. IEEE 802 notes that the importance of fair coexistence to a wide diversity of stakeholders has been highlighted once again by a series of letters recently sent to 3GPP RAN, and copied to IEEE 802, by representatives of the cities of New York, Madison (Wisconsin), Leverett (Massachusetts), Independence (Oregon) and Monmouth (Oregon).

In IEEE 802's Liaison Statement to 3GPP RAN1 dated 21 May 2016 (EC-16-0082-00), IEEE 802 expressed a concern that any changes arising from IEEE 802's Liaison Statement to 3GPP RAN1 dated 18 March 2016 (802.19-16-0037-09, containing twelve important technical comments related to LAA Rel. 13) would be ineligible to be included in LAA Rel. 13 because of the delay in 3GPP RAN1 considering IEEE 802's comments and the subsequent inability for IEEE 802 to consider 3GPP RAN1's responses until IEEE 802's July 2016 face to face meeting. IEEE 802 was pleased to receive 3GPP RAN's confirmation in 3GPP RAN's Liaison Statement dated 19 June 2016 (RP-161228) that while LAA Rel. 13 was frozen at RAN#71 in March 2016, this does not preclude corrections to the channel access parameters or procedures. These are the topics likely to be of most relevance to any coexistence issues between LAA and 802.11 systems.

The recent interactions between 3GPP RAN/RAN1 and IEEE 802 in relation to LAA are based on the understanding from the 3GPP LAA Workshop in August 2015 that 3GPP RAN/RAN1 operates according to a consensus process and the agreement that IEEE 802, as an important stakeholder in the fair use of unlicensed spectrum, should be included in the consensus process. Since that time, IEEE 802 has sent a number of Liaison Statements to 3GPP RAN/RAN1 as part of our commitment to participate in the consensus process.

This Liaison Statement includes, in the appendix, commentary from IEEE 802 members on all of the responses included in 3GPP RAN1's Liaison Statement received by IEEE 802 on 7 June 2016 (R1-166040). The commentary suggests that some of the comments in IEEE 802's Liaison Statement to 3GPP RAN1 dated 18 March 2016 (802.19-16-0037-09) have been resolved satisfactorily. This represents a great success for the consensus process that started with the 3GPP LAA Workshop back in August 2015. However, there are a number of important outstanding issues, for which we request 3GPP RAN1 to continue to look for satisfactory compromises with IEEE 802 and other interested stakeholders.

The following table contains a summary of the status of the twelve comments on LAA Rel. 13 that were previously liaised by IEEE 802 to 3GPP RAN1. The status column is color coded to indicate the level of consensus on each issue. **Green** indicates “consensus” or “resolution”; **red** indicates “lack of consensus” or “no resolution”; **orange** indicates “progress towards consensus” or “progress towards resolution”.

#	Comment by IEEE 802 in Liaison Statement to 3GPP RAN1	Status
1	<i>Radio equipment in unlicensed spectrum should not transmit energy for the primary purpose of blocking access to the channel to others</i>	Possibility for consensus & resolution
2	<i>Transmission of Discovery Reference Signals should be clearly bounded to avoid excess airtime overhead on unlicensed spectrum</i>	Some consensus, but not fully resolved
3	<i>Radio equipment in unlicensed spectrum should detect neighboring networks with sufficient sensitivity to ensure fair coexistence</i>	No consensus, and not resolved
4	<i>LAA and IEEE 802.11 slot boundaries should align as accurately as possible to preserve spectral efficiency in unlicensed spectrum</i>	No consensus, and not resolved
5	<i>LAA and 802.11 multi-channel aggregation schemes should align</i>	No consensus, wait for measurements
6	<i>Radio equipment in unlicensed spectrum should stop transmission as soon as transmission of useful data is complete</i>	Possibility for consensus & resolution
7	<i>Channel access that is obtained using special access mechanisms for high priority data should not be used to transmit lower priority data</i>	Consensus but not fully resolved
8	<i>The maximum continuous transmission time should be limited to avoid blocking latency sensitive traffic on coexisting networks</i>	Consensus but not fully resolved
9	<i>Adjustment of channel access contention window should be based on comparable indicators of congestion to ensure fairness between technologies</i>	No consensus, wait for measurements
10	<i>Adjustment of channel access contention window should be clearly defined</i>	Consensus, and resolved
11	<i>The channel access state machine during channel sensing should be clearly defined</i>	Consensus, and resolved
12	<i>The use of the back off mechanism should be clearly defined</i>	Substantial consensus, but not fully resolved

IEEE 802 looks forward to a continued, productive interchange between our two organizations on these and other issues during the development of LAA Rel. 14.

The next two IEEE 802 meetings are on 11-16 September 2016 in Warsaw, Poland and 6-11 November 2016 in San Antonio, Texas, US.

Regards,

/s/ Paul Nikolich

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