**Liaison statement from IEEE 802.11 Working Group to the Wireless Broadband Alliance (WBA)**

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| Source: | IEEE 802.11 Working Group[[1]](#footnote-1) | |
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| From: | Dorothy Stanley | Chair, IEEE 802.11 WLAN Working Group [dstanley@ieee.org](mailto:dstanley@ieee.org) |
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| Subject: | Liaison communication reply to *WBA Communication to IEEE 802.11 on "802.11ax - Enhanced Wi-Fi WBA Workstream"* | |
| Approval: | Approved 2018-07-13 by the IEEE 802.11 Working Group | |

Dear Bruno,

The IEEE 802.11 Working Group is pleased to have received your liaison of June 21, 2018, regarding recent progress made on the WBA’s 802.11ax – Enhanced Wi-Fi Workgroup, specifically on the assessment of newly introduced 11ax features vs. 11ac improved features.

Regarding your request to “confirm whether this information might be used by WBA on this paper or you would have any specific feedback”, we are providing feedback to the high-level tables you are planning to include as an annex to your paper as indicated in the appendix below. Feedback is indicated in red font.

Thank you for your request and I look forward to continued collaboration between the IEEE 802.11 WLAN Working Group and the WBA.

Sincerely,

/s/

Dorothy Stanley ([dstanley@ieee.org](mailto:dstanley@ieee.org) )

Chair, IEEE 802.11 WLAN Working Group

Appendix:



Changes to the “Biz Features Overview” tab are shown below. Please see the spreadsheet for all of the updated tabs.

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|  | **Feature** | **Description** | **Business Advantage/Impact** |
| 1 | **OFDMA Uplink & Downlink** | With uplink/downlink OFDMA technology, more data can flow simultaneously, resulting in more efficient transmissions. Increases efficiency and reduces latency as several devices communicating concurrently in portions of the frequency spectrum allocated proportional to their needs. | Wi-Fi becomes a much better solution for public hotspots, service provider Wi-Fi, and for Wi-Fi/LTE Aggregation. Particularly in high density, high throughput environments, boosting data rates and allowing more simultaneous clients to be supported is key. |
| 2 | **Transmission Scheduling** | Scheduling allows transmissions to be orchestrated, users are scheduled so that data requests on the uplink do not clash with each other. | Managed approach results in better resource utilization and an increase in efficiency (latency), and therefore, better operator control over quality of service. |
| 3 | **Multi-User MIMO Uplink & Downlink** | Increase channel capacity when servicing multiple simultaneous devices (up to 8x8). In addition to downlink MU-MIMO (from 802.11ac) that is important for keeping real-time traffic flowing smoothly on congested networks, uplink was added to address further use cases. Maximum number of users supported in downlink MU-MIMO was also increased from 4 (802.11ac) to 8. Uplink MU-MIMO also supports maximum 8 users. | Serve up to 8 users simultaneously for a significant capacity boost. Address use cases from enterprise networks, large public venues and multi-dwelling buildings. MU-MIMO allows each user to utilize the full available frequency, enabling even higher throughputs. Examples include UHD video streaming in residential units or enterprise networks, and multiple autonomous vehicle downloading content - link efficiency. |
| 4 | **Peak Speeds** | Allow peak gigabit speeds by adding the ability for devices to send traffic along wider channels (up to 4x-6x faster than the last generation). Faster modulations schemes as 1024 QAM. | Support new use cases such as UHD Video, AR/VR, Next-gen e-Classrooms and requirements of high density environments (such as enterprise and condominiums). |
| 5 | **Flexible Channel Sizes** | Channel sizes are chosen based on the wide range of applications. Has flexible arrangement with channel sizes of 20/40/80/160 MHz, but a 20 MHz channel may break down into smaller blocks. Able to divide channels into small parts by using the sub-carriers enabled by OFDMA | The use of smaller channel sizes for IoT devices allows them to more efficiently use spectrum when lower data rates are required, and allows devices to use less power consumption. |
| 6 | **Target Wake Time** | Orchestrate specific times when clients awake / sleep and reduces access contention by allowing devices to wake up at periods other than the beacon transmission period. | Provides power-save and scheduling benefit. TWT significantly improves power consumption which is beneficial for low power mode devices. Additionally, TWT also enables scheduling that yields to better utilization of resources in a dense network |
| 7 | **Spatial Reuse / Colour Codes** | Enables devices to differentiate transmissions in their own network from transmissions in neighboring networks. Thus, allows APs to more efficiently share channel capacity. | Improves the overall system throughput in a dense network by allowing more transmissions. |
| 8 | **Dual Band Frequencies** | Support both 2.4 GHz and 5GHz - works in both bands in a unified way. | All previous Wi-Fi generations are compatible and spectrum usage possibilities expand. |
| 9 | **Self Optimizing Capability** | Self-optimizing network functionality includes mesh networking: security automation, bandwidth optimization, channel & traffic management. | Full infusion of these features on the market, mostly in consumer mesh router products, re-enforces simplicity. |
| 10 | **Increased Guard Interval/Cyclic Prefix/Symbol Time** | ~~Doppler Bit field impacts - used to eliminate~~ Longer cyclic prefix reduces inter-symbol and inter-carrier interference. | Targeted to improve outdoor performance and enables UL MU-MIMO and UL OFDMA. |
| 11 | **Support of New Frequency Ranges** | Possibility of expanding existing frequency ranges to adapt to a new set of use cases and specific devices requirements | Targeting use cases that leverage very low type of bandwidth devices. |
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1. This document represents the views of the IEEE 802.11 Working Group,and does not necessarily represent a position of the IEEE, the IEEE Standards Association, or IEEE 802. [↑](#footnote-ref-1)