IEEE P802.11
Wireless LANs

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| Resolution of TBDs in clause 9.4.2 |
| Date: 2022-December-10 |
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Abstract

This document proposes resolution for some TBDs in Draft 0.5

Based on IEEE P802.11bf/D0.5, December 2022

**Section: 9.4.2.322 DMG Sensing Capabilities element**

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| **TBD** | **Clause Number(C)** | **Page(C)** | **Line(C)** | **Text** |
| TBD | 9.4.2.322 | 94 | 12 | The Maximum Doppler subfield indicates the maximum supported Doppler in units of TBD |

**Discussion:**

The Maximum Doppler subfield is 8 bits in Figure 9-1002ba—DMG Sensing Capabilities field format

This field shall facilitate any reasonable Doppler range.

Let’s consider some known challenging cases:

* “Fastest punch”: in [1] it is stated that the record is 45mph, equivalent to 20m/s
* “Fingers snap”: one of the fastest body part movements, it is stated that peak velocity can reach 5m/s.
* “Bullet train”: train speed record is 603kmh, equivalent to 167.5m/s

The highest speed which can be reported in DMG Sensing Image Doppler Axis LUT element (section 9.4.2.326) is 65.535m/sec

Hence, we suggest using units of 0.256m/s (= 256mm/s) is units for Maximum Doppler subfield

[1] - [Keith Liddell - Wikipedia](https://en.wikipedia.org/wiki/Keith_Liddell)

[2] - [acoustics - Finger snapping: Maximum fingertip speed and generated pressure change - Physics Stack Exchange](https://physics.stackexchange.com/questions/201618/finger-snapping-maximum-fingertip-speed-and-generated-pressure-change#:~:text=The%20typical%20human%20finger%20is%20on%20the%20order,upwards%20of%20~20%20m%2Fs%2C%20these%20numbers%20seem%20okay.)

[3] - [The ultrafast snap of a finger is mediated by skin friction | Journal of The Royal Society Interface (royalsocietypublishing.org)](https://royalsocietypublishing.org/doi/10.1098/rsif.2021.0672)

[4] - [Railway speed record - Wikipedia](https://en.wikipedia.org/wiki/Railway_speed_record)

## *TGbf Editor: Please modify the text at P94L12 in subclause 9.4.2.322 in D0.5 as follows.*

The Maximum Doppler subfield indicates the maximum supported Doppler in units of 256 mm/s.

**Section: 9.4.2.322 DMG Sensing Capabilities element**

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| **TBD** | **Clause Number(C)** | **Page(C)** | **Line(C)** | **Text** |
| TBD | 9.4.2.322 | 94 | 15 | The Best Doppler Resolution subfield indicates the minimum supported Doppler resolution in units of TBD |

**Discussion:**

The Best Doppler Resolution subfield is 8 bits in Figure 9-1002ba—DMG Sensing Capabilities field format

The definition of DMG Sensing Image Doppler Axis LUT element (section 9.4.2.326) has Doppler resolution in 1mm/s.

Hence, we suggest to use same resolution for the Best Doppler Resolution units as well.

## *TGbf Editor: Please modify the text at P94L15 in subclause 9.4.2.322 in D0.5 as follows.*

The Best Doppler Resolution subfield indicates the minimum supported Doppler resolution in units of

 1 mm/s.

**Section: 9.4.2.329.1 General**

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| **TBD** | **Clause Number(C)** | **Page(C)** | **Line(C)** | **Text** |
| TBD | 9.4.2.329.1 | 103 | 36 | The DMG Measurement Setup ID, Measurement Burst ID, and Sensing Instance SN(#397, #223, #424) fields are defined in TBD. |

**Discussion:**

What is missing here is the pointer to where the fields are defined.

Reusing the text from **9.3.1.25.5 DMG Sensing Request**

## *TGbf Editor: Please modify the text at P103L36 in subclause 9.4.2.329.1 in D0.5 as follows.*

The DMG Measurement Setup ID, Measurement Burst ID and Sensing Instance SN(#397, #223) fields identify

the DMG sensing measurement setup, DMG sensing burst, and the DMG sensing instance, respectively(#

391).

**Section: 9.4.2.329.3 DMG Sensing Image Report Data subelement**

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| **TBD** | **Clause Number(C)** | **Page(C)** | **Line(C)** | **Text** |
| TBD | 9.4.2.329.3 | 109 | 6 | The Axis #1, #2, #3 and #4 subfields in the Reflection Subelement represents the index of the axis accordingto the values defined in TBD. |

**Discussion:**

What is missing here is the pointer to where the Axis #1, #2, #3 and #4 subfields are defined:

Table 9-401ab—Order of the axis and allocated bits in Reflection Subelement

## *TGbf Editor: Please modify the text at P109L6 in subclause 9.4.2.329.3 in D0.5 as follows.*

The Axis #1, #2, #3 and #4 subfields in the Reflection Subelement represents the index of the axis according

to the values defined in Table 9-401ab (Order of the axis and allocated bits in Reflection Subelement).

**Section: 9.4.2.330 BRP Sensing element**

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| **TBD** | **Clause Number(C)** | **Page(C)** | **Line(C)** | **Text** |
| TBD | 9.4.2.330 | 113 | 1 | The Report Type subfield is defined in TBD. |

**Discussion:**

What is missing here is the pointer to where the Report Type subfield is defined: Table 9-401z—DMG Sensing Report Type field definitions

## *TGbf Editor: Please modify the text at P113L1 in subclause 9.4.2.330 in D0.5 as follows.*

The Report Type subfield is defined in Table 9-401z (DMG Sensing Report Type field definitions).