IEEE P802.11
Wireless LANs

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| Passive Location Ranging Inheritance of TB Ranging Properties - CIDs Resolutions |
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Abstract

This document proposes resolutions to comments related Passive Location Ranging inheritance of TB Ranging properties.

TGaz LB240 CIDs addressed: 1286, 1520, 1542, 1543, 1544, 1547, 1548, 1551, 1552, 1553, 1554, 1555, 1556, 1561, 1562, 1564, and 1565.

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| **CID** | **P.L** | **Clause** | **Comment** | **Proposed change** | **Resolution** |
| 1286 | 124.29 | 11.22.6.4.10 | "exceptions described in Section 11.22.6.4.9 (Measurement Exchange in TB Passive Range Location Ranging mode), with subsections" - the mentioned subclause does not exist. It is probably refering to the current subclause, in which case it should just say "with exceptions described in this subclause" | as in comment, or point ot an existing subclause. |  |
| 1520 | 6.22 | 4.3.19.19 | Here what applies to TB Ranging Sequence also applies to the Passive Location Ranging Sequence. | Add that it applies also to the Passive Location TB Ranging Sequence. |  |
| 1542 | 67.25 | 9.6.7.32 | The 'Ranging Parameters field is present in the initial Fine Timing Measurement Request frame' applies also to the Passive Location Ranging case. The description for this is mssing. | Add description of the behavior of the 'Ranging Parameters field is present in the initial Fine Timing Measurement Request frame' for the Passive Location Ranging case. |  |
| 1543 | 69.06 | 9.6.7.33 | The 'Ranging Parameters field is present in the initial Fine Timing Measurement Frame' applies also to the Passive Location Ranging case. The description for this is missing. | Add description of the 'Ranging Parameters field is present in the initial Fine Timing Measurement Frame' for the Passive Location Ranging case. |  |
| 1544 | 69.23 | 9.6.7.33 | The FTM Synchronization Information field is present in the initial Fine Timing Measurement frame and its retransmissions if any, and in the first Fine Timing Measurement frame within each burst and its retransmissions if any; if the responder selects Fine Timing Measurement (11.22.6.4.2 25 RSTA Centric EDCA basic legacy scheduling Measurement) for the ranging phase, and in an A-MPDU aggregated with an LMR frame if the responder selects \*Passive Location Ranging\* for the ranging phase. The description for this is missing. | Add the missing description for the Passive Location Ranging case as per the comment. |  |
| 1547 | 79.19 | 11.22.6.1 | The RSTA centric scheduling is supported also by Passive Location Ranging. Add the description of this. | Add the missing description for the Passive Location Ranging case as per the comment. |  |
| 1548 | 80.06 | 11.22.6.1.1 | Also in in Passive Location Ranging Measurement Exchange the RSTA poll the ISTA to indicate their need for measurement resources and allocated medium for Range measurement based on the ISTAs' responses. The description for this is missing. | Add the missing description for the Passive Location Ranging case as per the comment. |  |
| 1551 | 87.01 | 11.22.6.3.3 | The ISTA Availability Window element in the HEz specific subelement in the IFTMR indicates also its availability for Passive Location Ranging. Description for this is missing. | Add the missing description for the Passive Location Ranging case as per the comment. |  |
| 1552 | 87.14 | 11.22.6.3.3 | An RSTA shall reject a request also for Passive Location Ranging from an ISTA if the RSTA cannot assign the ISTA to an availability window that does not overlap with a 10 TU interval in which the ISTA is 15 unavailable (as signaled by the ISTA Availability Window element in the IFTMR). The description for this is missing. | Add the missing description for the Passive Location Ranging case as per the comment. |  |
| 1553 | 87.36 | 11.22.6.3.3 | Also for Passive Location Ranging, the ISTA shall indicate, in the Ranging Priority subfield of the Ranging Parameters field of the Ranging Parameters element in the initial Fine Timing Measurement Request frame, its Ranging Priority according to Table 9-281b in 9.4.2.167. The description for this is missing. | Add the missing description for the Passive Location Ranging case as per the comment. |  |
| 1554 | 87.39 | 11.22.6.3.3 | Also for Passive Location Ranging, the RSTA shall indicate, in the Ranging Priority subfield of the Ranging Parameters field of the Ranging Parameters element in the initial Fine Timing Measurement frame, whether it accommodates the Ranging Priority request transmitted by the ISTA according to Table 9-281b in 9.4.2.167. The description for this is missing. | Add the missing description for the Passive Location Ranging case as per the comment. |  |
| 1555 | 88.06 | 11.22.6.3.3 | Also if the negotiation is successful and the selected range measurement mode is Passive Location Ranging Based, the corresponding initial Fine Timing Measurement frame from the responding 7 STA shall include a Ranging Parameters element with the parameters that defines the negotiated 8 range measurement session. The description of this is missing. | Add the missing description for the Passive Location Ranging case as per the comment. |  |
|  |  |  |  |  |  |
| 1556 | 88.16 | 11.22.6.3.3 | If the negotiation is successful and the selected range measurement mode is Passive Location Based, the corresponding initial Fine Timing Measurement frame from the responding STA shall include a Ranging Parameters element with the parameters that defines the negotiated range measurement session. The description for this is missing. | Add the missing description for the Passive Location Ranging case as per the comment. |  |
| 1561 | 105.25 | 11.22.6.4.5 | Also in the non-secure variant of the Passive Location Ranging measurement exchange, the NUM\_STS paramater is set to the same value as the DL N\_STS field in the STA Info field in the preceding Ranging NDP Announcement frame. The description for this is missing. | Add the missing description for the Passive Location Ranging case as per the comment. |  |
| 1562 | 106.04 | 11.22.6.4.5 | Also in the non-secure variant of the Passive Location Ranging measurement exchange, the LTF\_REP paramater is set to the same value as the DL N\_STS field in the STA Info field in the preceding Ranging NDP Announcement frame. The description for this is missing. | Add the missing description for the Passive Location Ranging case as per the comment. |  |
| 1564 | 124.15 | 11.22.6.4.10 | The Passive Location Ranging is a variant of TB ranging and is identical to TB ranging, except where explicitly mentioned that it follows a different protocol. Text specifying this is missing in general, e.g. in the location referred to here but also in other places in the draft. | Add text as per the comment in the location specified here as well as throughout the document. Also specify what aspects of TB Ranging does not apply to Passive Location Ranging. |  |
| 1565 | 124.16 | 11.22.5.4.10.1 | For scheduling of the Passive Location Ranging uses the same method as the one used for TB Ranging. See Section 11.22.6.4.3.1 (General in Section Measurement Exchange in TB mode). Text specifying this is missing. | Add text as per the comment. |  |

***TGaz Editor: Change the text in Section 11.22.6.1 as follows:***

**11.22.6.1 Overview**

***Change the following paragraphs of Clause 11.22.6.1 as shown below:***

***…***

RSTA centric scheduling is supported by legacy FTM, TB, PDMG and PEDMG ranging. ISTA centric scheduling is supported by non-TB ranging. The RSTA centric scheduling is also supported by Passive Location Ranging which is a variant of TB ranging.

For EDMG STAs that have set to one the First Path Beamforming Training Supported field in the Beamforming Capability subelement, an FTM session shall be preceded by a first path beamforming training as described in 10.43.10.6 First Path Beamforming Training.

**…**

***TGaz Editor: Change the text in Section 11.22.6.2 as follows:***

**11.22.6.2 FTM capabilities**

***Insert the following paragraphs in Clause 11.22.6.2 as shown below:***

A STA in which dot11FineTimingMsmtRespActivated is false shall set the Fine Timing 4 Measurement Responder field of the Extended Capabilities element to 0.

A STA in which dot11FineTimingMsmtInitActivated is false shall set the Fine Timing 7 Measurement Initiator field of the Extended Capabilities element to 0.

(a) if dot11NonTriggerBasedRangingRespImplemented is true, the STA shall set the non-TB Ranging Responder field of the Extended Capabilities element to 1. Otherwise it shall set the non-TB Ranging Responder field of the Extended Capabilities element to 0.

(b) if dot11TriggedBasedRangingRespImplemented is true, the STA shall set the TB Ranging Responder field of the Extended Capabilities element to 1. 16 Otherwise it shall set the TB Ranging Responder field of the Extended 17 Capabilities element to 0.

(c) PDMG Ranging: it shall set the DMG Range Measurement field of the Extended Capabilities element to 1. Otherwise it shall set the Multi User Range Measurement field of the Extended Capabilities element to 0. A STA that additionally supports Direction Measurement shall include a DMG Direction Measurement Capabilities field in the DMG Capabilities element and set one of the first 4 subfields (AOA TX Capability, AOA RX Capability, AOD TX Capability, AOD RX Capability) of this field to 1.

(d) PEDMG Ranging, it shall set the EDMG Range Measurement field of the Extended Capabilities element to 1. It may also set the EDMG OFDM Range Measurement field of the Beamforming Capabilities subelement to 1 if it additionally supports OFDM ranging Otherwise it shall set the EMDG Range Measurement field of the Extended Capabilities element to 0. A STA that additionally supports Direction Measurement shall include a DMG Direction Measurement Capabilities field in the DMG Capabilities element and set one of the first 4 subfields (AOA TX Capability, AOA RX Capability, AOD TX Capability, AOD RX Capability) of this field to 1.

If the STA in which dot11FineTimingMsmtRespActivated is true supports

passive Location Ranging. It shall set the Passive Location Ranging Responder Measurement Support field of the Extended Capabilities element to 1. Otherwise it shall set the Passive Location Ranging Responder Measurement Support field of the Extended Capabilities element to 0.

If the STA in which dot11FineTimingMsmtInitActivated is true supports

passive Location Ranging. It shall set the Passive Location Ranging Initiator Measurement Support field of the Extended Capabilities element to 1. Otherwise it shall set the Passive Location Ranging Initiator Measurement Support field of the Extended Capabilities element to 0.

If the STA in which dot11TriggerBasedRangingRespImplemented, dot11NonTriggerBasedRangingRespImplemented, dot11PassiveLocationRangingInitiatorActivated, or dot11PassiveLocationRangingResponderActivated is true supports

(g) Phase Shift Feedback, it shall set the Phase Shift Feedback Support field in the Extended 1 Capabilities element to 1. Otherwise it shall set the Phase Shift Feedback Support field in 2 the Extended Capabilities element to 0.

***TGaz Editor: Change the text in (@11/714r0 P93L16) (@D1.0 P81L16) as follows:***

***11.22.6.1.3 Passive Location Ranging overview***

Passive Location Ranging is a variant of the TB Ranging mode referred to in Section 11.22.6.4.1 (FTM Measurement exchange overview). In all aspects, except where explicitly stated differently, the Passive Location Ranging mode, its protocols, procedures, componenets, and defenitions follow the rules for TB Ranging.

Below are listed a set of exceptions where Passive Location Ranging does not follow the rules for TB Ranging:

* The rules and procedures specific for the secure version of TB Ranging does not apply to Passive Location Ranging.
* The RSTA uses the ‘Passive Location Ranging’ Ranging Trigger Subtype for its sounding trigger frames.
* An ISTA uses HE Ranging NDP PPDUs for its I2R NDPs.
* An ISTA enganged in Passive Location Ranging does not use the Location Measurement Report for reporting of its measurements but instead uses the ISTA Passive Location Measurement Report frame for this purpose, with its associated different measurements.
* The RSTA send the Primus and Secundus broadcast frames as specified.
* The number of antennas for passive location ranging is limited to max 4.

The Passive Location Ranging mode consists of ranging exchanges between an RSTA and a set of ISTAs. These ranging exchanges and associated measurement reporting are set up such that an arbitrary STA can listen in to them and use the ranging exchanges and reported ranging measurements to estimate its differential distance to pairs or sets consisting of the RSTA and/or one or more ISTAs. The listening STA, a ‘passive’ STA or PSTA, is not itself an active (as in transmitting) participant in the ranging exchange. That is, the PSTA can passively estimate its differential distances to the RTA and the ISTAs pairs. It can then use these differential distances together with knowledge of the RSTA and ISTA locations to estimates its own location.

An ISTA whose dot11PassiveLocationRangingInitiatorActivated is true and an RSTA whose dot11PassiveLocationRangingResponderActivated is true may activate passive location ranging exchanges in which case, the ISTA and RSTA follow the rules described in subclause 11.22.6.4.3 (Measurement Exchange in TB Mode) with the exceptions described in Section 11.22.6.4.9 (Measurement Exchange in TB Passive Range Location Ranging mode), with subsections.

An RSTA in which dot11PassiveLocationRangingRespoinderActivated is true shall set the Passive Location Ranging Responder Measurement Support field in the Extended Capabilities element to 1.

When an ISTA sets the Passive Location Ranging field in the TB Specific Parameters field in an initial Fine Timing Measurement Request frame to 1, the ISTA shall set the Secure LTF Required subfield in the Ranging Parameters field in an initial Fine Timing Measurement Request frame to 0.

When an RSTA has set the Passive Location Ranging Responder Measurement Support field to 1 in the Extended Capabilities element it transmits, an ISTA with dot11PassiveLocationRangingActivated equal to true may set the Passive Location Ranging field in the TB Specific Parameters field in an initial Fine Timing Measurement Request frame to 1 to request a Passive Location Ranging measurement session between the ISTA and the RSTA.

The Passive Location Ranging exchanges occur in the scheduled Passive Location Ranging Availability windows.

The RSTA centric Scheduling for Passive Location Ranging operation operates as the RSTA

centric Scheduling for TB Ranging operation described in subclause 11.22.6.1.1. The availability

window is here referred to as a Passive Location Ranging Availability window. The RSTA

announces the schedule for the Passive Location Ranging Availability window, if present, in every beacon frame.

***TGaz Editor: Change the text in (@11/714r0 P94L47) (@D1.0 P82L48) as follows:***

If the STA in which dot11TriggerBasedRangingRespImplemented, dot11NonTriggerBasedRangingRespImplemented, dot11PassiveLocationRangingInitiatorActivated, or dot11PassiveLocationRangingResponderActivated is true supports:

(g) Phase Shift Feedback, it shall set the Phase Shift Feedback Support field in the Extended Capabilities element to 1. Otherwise it shall set the Phase Shift Feedback Support field in the Extended Capabilities element to 0.

***TGaz Editor: Change the text in (@11/714r0 P98L28) (@D1.0 P86L3)1 as follows:***

**11.22.6.3.3 Trigger-based and non-Trigger-based Ranging Measurement Negotiation**

Note: As speficied in Section 11.22.6.1.3 (Passive Location Ranging overview), the rules and procedures specified in this section also applies to Passive Location Ranging, except where explicitly stated otherwise.

The initial Fine Timing Measurement Request frame shall have:

— the Trigger field is set to one,

— a set of scheduling parameters in a Fine Timing Measurement Parameters element or a set of range measurement parameters in a Ranging Parameters element that describe the initiating STA’s availability for measurement exchange.

***TGaz Editor: Change the text in (@11/714r0 P97L8) (@D1.0 P87L8) as follows:***

An RSTA shall reject a request if it has set the Protection of Range Negotiation and Measurement Management Frames Required field of the Extended Capabilities element to 1, and the ISTA has not successfully set up a security context to protect IFTMR, IFTM and LMR frames exchanged between the RSTA and the ISTA. This does not apply if the ISTA is requesting Passive Location Ranging. Note that the security context can either be established as a result of a successful association between the RSTA and ISTA; or as a result of the ISTA 12 successfully completing PASN as described in 12.13 Pre-Association Security Negotiation.

***TGaz Editor: Change the text in (@11/714r0 P101L16) (@D1.0 P89L8) as follows:***

An ISTA which has set the ISTA-to-RSTA LMR feedback field to 1 and which is capable to send LMR carrying phase shift feedback shall set the ISTA-to-RSTA Phase Shift Feedback field to 1 in the Ranging Parameter field in an initial Fine Timing Measurement Request frame to indicate the ISTA’s capability.

— When an ISTA has set the ISTA-to-RSTA LMR feedback field to 1 and has set the ISTA-to-RSTA Phase Shift Feedback subfield to 1 in the Ranging Parameter field in an initial Fine Timing Measurement Request frame, an RSTA may set the ISTA-to-RSTA Phase Shift Feedback subfield to 1 in the Ranging Parameter field in an initial Fine Timing Measurement frame to activate a ISTA-to-RSTA phase shift feedback mode between the ISTA and the RSTA. Otherwise, RSTA shall set ISTA-to-RSTA Phase Shift Feedback subfield in the ranging parameter field of an initial Fine Timing Measurement frame to 0. When RSTA sets ISTA-to-RSTA Phase Shift Feedback subfield in the ranging parameter field of an initial Fine Timing Measurement frame to 1, the ISTA shall carry the phase shift TOA (PS-TOA) time stamp of DL NDP in the ISTA-to-RSTA LMR.

***TGaz Editor: Change the text inSection 11.22.6.3.4as follows:***

**In Section 11.22.6.3.4 (Secure LTF measurement setup)**

Note: As listed in Section *11.22.6.1.3 (Passive Location Ranging overview)*, this section does not apply to Passive Location Ranging.

***TGaz Editor: Insert a section 11.22.6.3.5 Passive Location Ranging Measurement Negotiation before (@D1.0edRedline P105L15) (@D1.0 P93L6) as follows:***

**11.22.6.3.7 Passive Location Ranging Measurement Negotiation**

The Passive Location Ranging measurement negotiation follows the rules and procedures of the TB Ranging measurement negotiation detailed in Section 11.22.6.3.3 (Trigger-based and non-Trigger-based Ranging Measurement Negotiation) with the exceptions described in this section.

To request Passive Location Ranging from an RSTA, the ISTA shall set the Passive Location Ranging subfield in the Ranging Parameters field to 1 in the IFTM frame. To grant an ISTA Passive Location Ranging, the RSTA shall respond with the Passive Location Ranging subfield in the Ranging Parameters field to set 1 in the corresponding IFTMR.

***TGaz Editor: Change the text in (@11/714r0 P105L17) (@D1.0 P93L6) as follows:***

**11.22.6.4.1 FTM Measurement exchange overview**

FTM measurement has four basic scheduling mechanisms:

— RSTA centric EDCA based Ranging scheduling mode (including PDMG and PEDMG) described in clause 11.22.6.4.7 and 11.22.6.4.8

— RSTA centric TB Ranging scheduling mode described in clause 11.22.6.4.3

— Measurement exchange in Non-TB Ranging scheduling mode described in clause 11.22.6.4.4

— Passive Location Ranging scheduling mode described in clause 11.22.6.4.10, which is a variant of the TB Ranging scheduling mode.

***TGaz Editor: Change the text in Section 11.22.6.4.3 (Measurement Exchanges in TB Mode) as follows:***

**11.22.6.4.3 Measurement Exchanges in TB Mode**

Note: As speficied in Section 11.22.6.3.1 (Passive Location Ranging overview), the rules and procedures specified in this section also applies to the Passive Location Ranging mode - which is a variant of the TB Ranging mode, except where explicitly stated otherwise.

***TGaz Editor: Change the text in Section 11.22.6.4.3.1 (General) as follows:***

**11.22.6.4.3.1 General**

Note: As speficied in Section 11.22.6.3.1 (Passive Location Ranging overview), the rules and procedures specified in this section also applies to the Passive Location Ranging mode - which is a variant of the TB Ranging mode, except where explicitly stated otherwise.

***TGaz Editor: Change the text in Section 11.22.6.4.3.1 (TN Polling Phase) as follows:***

**11.22.6.4.3.2 TB Polling Phase**

Note: As speficied in Section 11.22.6.3.1 (Passive Location Ranging overview), the rules and procedures specified in this section also applies to the Passive Location Ranging mode - which is a variant of the TB Ranging mode, except where explicitly stated otherwise.

***TGaz Editor: Change the text in (11/714r0 P109L4) (@D1.0 P96L14) as follows:***

**11.22.6.4.3.3 TB Ranging Measurement Sounding Part**

Note: As speficied in Section 11.22.6.3.1 (Passive Location Ranging overview), the rules and procedures specified in this section also applies to the Passive Location Ranging mode - which is a variant of the TB Ranging mode, except where explicitly stated otherwise.

The measurement sounding phase commences SIFS time after the polling phase and is the second phase of each polling/sounding/reporting triplet (see Figure 11-36d). The measurement sounding phase consists of one or more Trigger frames of variant Ranging, subvariants Sounding or Secured Sounding (“TF Ranging Sounding”, see 9.3.1.23.9 Location variant), allocating uplink resources to one or more ISTAs (see Figure 11-36a and Figure 11-36b). In case the ranging mode is Passive Location Ranging, then the Trigger frame is of variant Ranging and subvariant Passive Location Ranging Sounding. Each TF Ranging Sounding shall allocate uplink resources for one or more ISTA’s UL NDP multiplexed in the spatial stream domain. The frame format of the UL NDP is an HE TB Ranging NDP (see subclause 27.3.24), except for Passive Location Ranging where the UL NDP is an HE Ranging NDP (see 11.22.6.4.10.2 (Passive Location Ranging Measurement Sounding) for further details). SIFS time after receiving the last UL NDP, the RSTA shall transmit an NDP-A frame followed by a DL NDP sounding frame; the NDP-A is a Ranging NDP Announcement frame, see subclause 9.3.1.19 and the DL NDP is an HE Ranging NDP, see subclause 28.3.16. Figure 11-36c shows an availability window with an RSTA and two ISTAs (ISTA 1 and ISTA 4) responding to the poll. The TF Ranging Sounding allocates a separate spatial stream to each ISTA. The NDP-A is addressed to and the DL NDP is used by all ISTA taking part in the exchange.

***TGaz Editor: Change the text in (@11/714r0 P112L5) (@D1.0 P99L5) as follows:***

The UL power control, timing and frequency synchronization requirements of associated and unassociated STAs performing TB ranging shall follow the same rules as those of any associated HE STA .

In case the ranging mode is Passive Location Ranging, the measurement exchanges differ somewhat from the above description in this section. The deviations in this respect for the Passive Location Ranging mode is detailed in Section 11.22.6.4.10 (Measurement Exchange in Passive Location Ranging mode).

***TGaz Editor: Change the text in Section 11.22.6.4.3.4 (TB Ranging Measurement Reporting Part) as follows:***

**11.22.6.4.3.4 TB Ranging Measurement Reporting Part**

Note: As speficied in Section 11.22.6.3.1 (Passive Location Ranging overview), the rules and procedures specified in this section also applies to the Passive Location Ranging mode - which is a variant of the TB Ranging mode, except where explicitly stated otherwise.

***TGaz Editor: Change the text in (@11/714r0 P114L13) (@D1.0 P101L13) as follows:***

In TB ranging measurement reporting phase, if RSTA-to-ISTA LMR reporting or ISTA-to-RSTA LMR reporting carries phase shift feedback, then the RSTA-to-ISTA LMR reporting or the ISTA-to-RSTA LMR reporting shall be immediate feedback.

In case the ranging mode is the Passive Location Ranging variant of the TB Ranging, the measurement reporting differ somewhat from the above description in this section. The deviations in this respect for the Passive Location Ranging mode is detailed in Section 11.22.6.4.10.3 (Passive Location Ranging Measurement Reporting).

***TGaz Editor: Change the text in (@11/714r0 P139L19) (@D1.0 P124L16) as follows: (Some duplication here now…) WHAT MORE CHANGES TO DO HERE?***

**11.22.6.4.10.1 General**

The Passive Location Ranging mode is a variant of the TB Ranging mode that consists of ranging exchanges between an RSTA and a set of ISTAs. These ranging exchanges and associated measurement reporting are set up such that an arbitrary STA can listen in to them and use the ranging exchanges and reported ranging measurements to estimate its differential distance to pairs or sets consisting of the RTA and/or one or more ISTAs. This listening STA need not itself be an active (as in transmitting) participant in the ranging exchange. That is, this listening STA can passively estimate differential distances to the RTA and the ISTAs. It can then use these differential distances together with knowledge of the RSTA and ISTA locations to estimates its own location.

If an ISTA whose dot11PassiveLocationRangingInitiatorActivated is set to true, while an RSTA whose dot11PassiveLocationRangingResponderActivated is also set to true, the ISTA may activate passive location ranging exchanges. In this case, the ISTA and RSTA follow the rules described in subclause 11.22.6.4.3 (Measurement Exchange in TB Mode) with the exceptions described in subclause 11.22.6.4.10 (Measurement Exchange in TB Passive Range Location Ranging mode), with subclauses.

An RSTA in which dot11PassiveLocationRangingRespoinderActivated is true shall set the Passive Location Ranging Responder Measurement Support field in the Extended Capabilities element to 1.

When an ISTA sets the Passive Location Ranging field in the TB Specific Parameters field in an initial Fine Timing Measurement Request frame to 1, the ISTA shall set the Secure LTF Required subfield in the Ranging Parameters field in an initial Fine Timing Measurement Request frame to 0.

When an RSTA has set the Passive Location Ranging Responder Measurement Support field to 1 in the Extended Capabilities element, an ISTA with dot11PassiveLocationRangingActivated equal to true may set the Passive Location Ranging field in the TB Specific Parameters field in an initial Fine Timing Measurement Request frame to 1 to request a Passive Location Ranging measurement session between the ISTA and the RSTA.

- The RSTA sends the Passive Location Ranging Sounding Sub-variant Ranging Trigger Frame instead of the Sounding Sub-variant Ranging Trigger frame. Upon receiving of the Passive Location Ranging Sounding Sub-variant Ranging Trigger Frame, the ISTA responds with an HE Ranging NDP instead of an HE TB Ranging NDP. See 11.22.6.4.10.2 (Passive Location Ranging Measurement Sounding) for further details.

- The RSTA broadcasts two RSTA Broadcast Passive Location Measurement Report frames containing measurement data and related information. See 11.22.6.4.10.3 (TB Passive Location Ranging Measurement Reporting) for further details.

The Passive Location Ranging exchanges occur in the scheduled Passive Location Ranging Availability windows.

***TGaz Editor: Insert a section 11.22.6.4.10.2 Passive Location Ranging Measurement Sounding before (@11/714r0 P140L20) (@D1.0 P125L16) as follows:***

**11.22.6.4.10.1b Passive Location Ranging Polling**

The Passive Location Ranging polling follow the rules and procedures of the TB Ranging polling outlined in Section 11.22.6.4.3.2 (TB Polling Phase).

***TGaz Editor: Change the text in Section 11.22.6.5.1 (Availability Window parameter modification) as follows:***

**11.22.6.5.1 Availability Window parameter modification**

Note: As speficied in Section 11.22.6.3.1 (Passive Location Ranging overview), the rules and procedures specified in this section also applies to the Passive Location Ranging mode - which is a variant of the TB Ranging mode, except where explicitly stated otherwise.

**References:**

**[1] Draft P802.11az\_D1.0**

**[2] Draft P802.11ay\_D3.0**

**[3] Draft P802.11REVmd\_D2.1**