IEEE P802.11
Wireless LANs

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| Proposed resolution for CID 1711 – Beacon report |
| Date: 2022-08-14 |
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Abstract

During the 15 August TGme Teleconference CID 1711 was discussed, the issue raised in the comment was viewed to be of concern. However the resolution proposed: “ “, while “correct” does not resolve the issue of the term “Beacon report” being used to mean both the “full” Beacon report (the report consisting of all the frames send in a multi-frame Beacon report) and also a frame of the Beacon report in a manner that clarifies its meaning. Therefore, while it does provide insight as to how the term is used in the draft, it does not provide clarity on which meaning is the correct interpretation. This contribution attempts to solve this issue.

# Comment

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| --- | --- | --- | --- | --- | --- |
| **CID** | **P.L** | **C** | **Comment** | **Proposed Change** | **Resolution** |
| 1711 | 2816.60 | 11.10.9.1 | The terminology for beacon reporting (and probably other measurement reports too) is confusing. given beacon report fragmentation as to whether a "Beacon report" is one frame, which might only report on part of an AP's beacons, or the one or more frames that report on one (or more) APs' beacons in full (modulo the reporting detail and any truncation) | At the start of the subclause add "A Beacon report is, depending on context, the set of one or more frames responding to a Beacon request, or a single frame providing all or part of the response to a Beacon request." |  |

# Background

During the 15 August TGme Teleconference CID 1711 was discussed, the issue raised in the comment was agreed to be something that should be fixed. However the resolution proposed adding: "A Beacon report is, depending on context, the set of one or more frames responding to a Beacon request, or a single frame providing all or part of the response to a Beacon request.", while “correct” this description says that the Beacon report is one of two things, which is not a clear way of specifying something. It should also be considered that a Beacon report is not a frame, a Beacon report (9.4.2.21.7) is the information sent in a Measurement Type 5 Measurement Report element (9.4.2.21). The Measurement Report element is included in a Measurement Report frame (9.6.2.3) or a Radio Measurement Report frame (9.6.6.3). A Radio Measurement Report frame is a type of action frame (Radio Measurement Action Field value 1). When a Beacon report is too large for one Radio Measurement Report frame, it can be sent in several Radio Measurement Report frames, by fragmenting the Measurement Report field, the information on how the Measurement Report field is fragmented is in the Reported Frame Body Fragment ID subelement (Figure 9-285), note this subelement is only present if the Measurement Report field is fragmented. So while in Beacon report information may be contained in multiple Measurement Report fields that are transmitted in different Radio Measurement Report frames, there is only one Beacon report. Therefore using language that defines one of the Radio Measurement Report fames as being a Beacon report is incorrect and should be corrected. The reception of a Beacon report requires the reception of all the Radio Measurement Report frames, containing the Measurement Report elements of the fragmented Measurement report. Therefore, the location in the draft which call each of the Radio Measurement Report frames with a fragment of the Beacon report a Beacon report need to be fixed. The Reported Frame Body subelement contains some or all the fields and elements of the frame body of the reported Beacon. Measurement Pilot, or Probe Response frame.

All of 802.11REV D1.3 has been reviewed to find all locations where the term “beacon report” was used. The locations where it refers to something other than the “whole” Beacon report have been noted and highlighted below:

**The term “Beacon report” occurs at 104 locations**

TOC/tables/figures;

57.60, 110.6, 110.38, 144.13

3 Definitions

205.11 the mechanism “Beacon report”, so referring to the whole report.

4.3.11.2

278.21 – the Beacon report request/response – so this refers to the request/response and not the report itself.

Clause 9

1209.22 – reference to 11.10.9.1.

1209.38 – referring “requesting” the whole Beacon report.

1210.24 – referring “requesting” the whole Beacon report.

1210.30 – referring “requesting” the whole Beacon report.

1210.35 – reference to Table 9-141.

1210.43 – reference to 11.10.9.1.

1210.55 – Table name

1211.1 – Table name

1211.49 – referring to the content of the whole Beacon report.

1212.9 – referring to the content of the whole Beacon report.

1212.19 – reference to 11.10.9.1.

1212.26 – reference to 11.10.9.1.

1245.1 – 9.4.3.21.7 clause name

1245.3 – referring to the whole Beacon report.

1245.5 – referring to the figure 9-283

1245.20 – figure 9-283 title, referring to the whole Beacon report.

1245.44 – referring to the whole Beacon report.

1246.30 – referring to table 9-166

1246.33 – table 9-166 title, referring to the whole Beacon report.

1246.59 - referring to the whole Beacon report.

1247.1 – reference to 11.10.9.1.2

1247.39 – this is behavior in clause 9 and should be deleted, assuming it is provided in the correct clause. The Beacon report refers to the fragment.

1370.56 - reference to 11.10.9.1.

1887.57 – refers to the whole Beacon report

1887.58 – reference to 9.4.2.21.7

Clause 11 (11.10.9.1 Beacon report)

2823.59 – 11.10.9.1 header

2824.5 – restriction on including the Reported Frame Body subelement – in the Beacon report(s) – the whole Beacon report.

2824.9 – reference to the rules on truncation in clause 11.10.9.1.2, the whole Beacon report.

2824.10 – reference to 11.10.9.1.2.

2824.15 – reference to the rules on truncation in clause 11.10.9.1.2, the whole Beacon report.

2824.16 – reference to 11.10.9.1.2.

2824.20 – reference to field (RCPI) in the Beacon report – though it isn’t called out that way. The whole Beacon report

2824.22 – the whole Beacon report.

2814.30 – the whole Beacon report.

2814.31 – the whole Beacon report.

2814.32 – reference to Table 9-141.

2824.34 – the whole Beacon report.

2824.37 – the whole Beacon report.

2824.37 – the whole Beacon report.

2824.40 – the whole Beacon report.

2824.55 – the whole Beacon report.

2824.59 – the whole Beacon report.

2825.21 – the whole Beacon report.

2825.25 – the whole Beacon report.

2825.30 – the whole Beacon report.

2825.31 – the whole Beacon report.

2825.36 – the whole Beacon report.

2825.37 – the whole Beacon report.

2826.19 – the whole Beacon report.

2826.27 – the whole Beacon report.

2826.30 – the whole Beacon report.

2826.31 – the whole Beacon report.

2826.35 – the whole Beacon report.

2826.40 – the whole Beacon report.

2826.43 – the whole Beacon report.

2826.45 – reference to Table 9-141.

2826.45 – the whole Beacon report.

2826.51 – the whole Beacon report.

2826.52 – the whole Beacon report.

2826.54 – reference to Table 9-141.

2826.61 – the whole Beacon report.

2827.1 – the whole Beacon report.

2827.14 – the whole Beacon report.

2827.16 – the whole Beacon report.

2827.18 – the whole Beacon report.

2827.34 – the whole Beacon report.

2827.38 – the whole Beacon report.

2827.43 – 11.10.9.1.2 header.

2827.45 – the Beacon report contains the Reported Frame Body.

2827.46 – the Beacon report contains the Reported Frame Body.

2827.48 – the whole Beacon report.

2827.53 – the Beacon report contains a fragment of the Reported Frame Body.

2827.56 – the Beacon report contains a fragment of the Reported Frame Body.

2827.60 – the Beacon report contains a fragment of the Reported Frame Body.

2827.60 – the Beacon report contains a fragment of the Reported Frame Body.

2827.62 – the Beacon report contains a fragment of the Reported Frame Body.

2828.1 – the Beacon report contains a fragment of the Reported Frame Body.

2828.4 – the whole Beacon report.

2828.5 – the whole Beacon report.

2828.9 – the Beacon report contains the Reported Frame Body.

2828.10 – the whole Beacon report.

2828.11 – the whole Beacon report.

2828.24 – the whole Beacon report.

Clause 26.10

4237.46 – reference to 9.4.2.21.7

4237.62 = the whole Beacon report.

Clause B.4.15 –

5039.30 – reference to 11.10.9.1

5039.36 – reference to 11.10.9.1

5039.40 – reference to 11.10.9.1

5039.43 – reference to 11.10.9.1

5039.88 – capability name

5039.52 – reference to 9.4.2.21.7

C.3 MIB detail:

5321.50 – reference to Table 9-141.

5345.50- description – whole Beacon report

5345.61- description – whole Beacon report

5346.8- description – whole Beacon report

5346.48- description – whole Beacon report

5347.8- description – whole Beacon report

5348.2- description – whole Beacon report

The term “Beacon reports” occurs at 11 locations:

1209.40 – this is behavior in clause 9 and should be deleted, assuming it is provided in the correct clause.

1246.64 – this is behavior in clause 9 discussing the possible omission or truncation of subelements, or the omission or fragmentation over multiple Beacon reports. This text should be moved or deleted if the behavior is described in other clauses. This text refers to each fragment as a Beacon report.

1247.22 – the use of Beacon reports in this location is confusing: “The Beacon Report ID field identifies the reported frame for which the Beacon reports are sent as a response to a Beacon request.(#294)”

2823.65 – The meaning in the sentence is clear and is not ambiguous.

11.10.9.1.2

2827.50 – At this location the Beacon reports refer to the two or more fragments of the Reported Frame Body subelement. So in this clause the Beacon report refers to each frame and not the total report.

2827.56 – At this location the Beacon reports also refer to each frame.

2827.64 – At this location the Beacon reports also refer to each frame.

11.26.2

2984.25 – There the Radio Measurement Report frame contains Beacon reports – referring to the whole Beacon report.

2984.25 – referring to the whole Beacon report.

C.3 MIB detail:

5344.44 – in Description section – refers to the whole Beacon report.

5345.24 – in Description section – refers to the whole Beacon report.

There are 9 instances of “Beason Report” in the draft.

1210.15 – Subelement name in Table 9-140

1212.6 – Subelement name

1246.46 – Subelement name in Table 9-166

1247.14 – field name

1247.22 – field name

1247.38 – Subelement name

2827.37 – Subelement name

2827.38 – Subelement name

2827.45 - Subfield name note: called a field in clause 9, should probably be fixed.

There are no instances of “beacon report” in the draft.

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# Proposed Resolution

Referring to each fragment of the Reported Frame Body subelement that contains a fragment of the Beacon report as a Beacon report is confusing and the specification would be clearer if the Beacon report only referred to the whole Beacon report and a different term was used to describe the frame that contains the fragments of the report when the report is fragmented. As discussed above the Beacon report is transmitted in a Radio Measurement Report frame if it fits or multiple Radio Measurement Report frames if the Measurement Report element containing the Beacon report needs to be fragmented to fit in multiple Radio Measurement Report frames. The rules on how to fragment the Reported Frame Body subelement that contains the Beacon report so that the subelement will fit in a Measurement Report element in a Radio Measurement Report frame is described in 11.10.9.1.2.

2827.43

* Truncation and/or fragmentation of reported frame body in Beacon report(#294)

If a Reported Frame Body subelement containing a Beacon report would exceed the maximum subelement size or would cause the Measurement Report element containing the Beacon report to exceed the maximum element size, and the STA transmitting the Beacon report supports Reported Frame Body subelement fragmentation, the Reported Frame Body subelement shall be fragmented as follows:

* The payload of the Reported Frame Body subelement is fragmented into two or more Reported Frame Body subelements
* A Reported Frame Body Fragment ID subelement is present in each of the Reported Frame Body subelements
* The Beacon Report ID subfield in the Reported Frame Body Fragment ID subelement of each of the Reported Frame Body subelements is the same, and is different from that of Reported Frame Body subelements corresponding to a different Beacon report
* The Fragment ID Number subfield in the Reported Frame Body Fragment ID subelement of the first Reported Frame Body subelement is set to 0 and is incremented by 1 for each subsequent Reported Frame Body subelement of containing a fragment of the Beacon report
* The More Frame Body Fragments field in the Reported Frame Body Fragment ID subelement is set to 1 in all except the last Reported Frame Body subelement
* Elements in the Reported Frame Body subelement are not truncated, split across two Reported Frame Body subelements, or omitted

NOTE 1—This means the last element in the Reported Frame Body subelement is a complete element.

NOTE 2—The STA requesting a Beacon report must support Reported Frame Body subelement (de)fragmentation unless it sets the Reporting Detail subelement in the Beacon request to ensure the STA sending the Beacon report does not use fragmentation.

If a Reported Frame Body subelement containing a Beacon report would exceed the maximum subelement size or would cause the Measurement Report element containing the Beacon report to exceed the maximum element size, and the STA transmitting the Beacon report does not support Reported Frame Body subelement fragmentation, reported elements shall be truncated or omitted as follows to make them fit:

* A TIM element may be truncated such that only the first 4 octets of the element are reported and the element Length field is modified to indicate the truncated length of 4.
* A IBSS DFS element may be truncated so that only the lowest and highest channel number map are reported and the element Length field is modified to indicate the truncated length of 13.
* An RSNE may be truncated so that only the first 4 octets of the element are reported and the element Length field is modified to indicate the truncated length of 4.
* Elements may be omitted from the end of Reported Frame Body subelement.

NOTE 3—Elements are not truncated or omitted if the STA transmitting the Beacon report supports Reported Frame Body subelement fragmentation.