IEEE P802.11  
Wireless LANs

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| LB 200 Annex B comment resolution | | | | |
| Date: 2014-05-13 | | | | |
| Author(s): | | | | |
| Name | Affiliation | Address | Phone | email |
| Rojan Chitrakar | Panasonic R&D center Singapore | Blk1022 Tai Seng Ave #06-3530 Singapore | +65-65505347 | Rojan.Chitrakar@sg.panasonic.com |
| Ken Mori | Panasonic Corporation |  |  | Mori.ken1@jp.panasonic.com |

Abstract

This submission proposes comment resolutions related to Annex B from TGah Draft 1.0 for the following CIDs:

* 1645, 1798, 2093, 2332, 2626, 2830, 2933

Interpretation of a Motion to Adopt

A motion to approve this submission means that the editing instructions and any changed or added material are actioned in the TGah Draft. This introduction is not part of the adopted material.

***Editing instructions formatted like this are intended to be copied into the TGah Draft (i.e. they are instructions to the 802.11 editor on how to merge the text with the baseline documents).***

***TGah Editor: Editing instructions preceded by “TGah Editor” are instructions to the TGah editor to modify existing material in the TGah draft. As a result of adopting the changes, the TGah editor will execute the instructions rather than copy them to the TGah Draft.***

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** | **Resolution** |
| 1645 | 368 | B | Annex B, PICS needs to be updated. | Update Annex B based on required features | Accepted. TGah editor to add the Annex B and PICS table presented in 11-14-587r0. |
| 1798 | 368 | B | Annex B for Protocol Implementation Conformance Statement (PICS) proforma is not present | Annex B to be added | Accepted. TGah editor to add the Annex B and PICS table presented in 11-14-587r0. |
| 2093 | 368 | B | Missing Changes to Annex B Specifically I would consider changing my vote if the PICS changes that are necessary for 11ah are included | . -- Please add specific PICS entries for 11ah | Accepted. TGah editor to add the Annex B and PICS table presented in 11-14-587r0. |
| 2332 | 368 | B | There is no PICS coverage for these features | Add PICS subclauses. This will also clarify what features are interoperable with non-S1G devices. The intended (and unintended) impacts on non-S1G devices is critical understanding. | Accepted. TGah editor to add the Annex B and PICS table presented in 11-14-587r0. |
| 2626 | 368 | B | The draft doesn't include PICS specifying which features are optional and which are mandatory | Add the PICS | Accepted. TGah editor to add the Annex B and PICS table presented in 11-14-587r0. |
| 2830 | 368 | B | The draft does not have PICS. | Add PICS, please. | Accepted. TGah editor to add the Annex B and PICS table presented in 11-14-587r0. |
| 2933 | 368 | B | It is not clear whether each funtion is mandatory or optional because this draft does not contain PICS formulas. | Please add "Annex B" as well as other amendments. | Accepted. TGah editor to add the Annex B and PICS table presented in 11-14-587r0. |

***TGah editor: Please add Annex B:***



Protocol Implementation Conformance Statement (PICS)

proforma

B.2 Abbreviations and special symbols

S1GM Sub 1 GHz (S1G) medium access control (MAC) features

S1GP Sub 1 GHz (S1G) physical layer (PHY) features

RL Relay features

B.4 PICS proforma—IEEE Std 802.11ah

*Change B.4.3 as follows (only changed rows are shown):*

Note: CF32 and CF33 are ANA numbers and may be changed in the future based on ANA allocation.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| B.4.3 IUT configuration | | | | |
| Item | IUT configuration | References | Status | Support |
|  | What is the configuration of the IUT? |  |  |  |
| \*CF1 | Access point (AP) | 4.3  (Componen  ts of the  IEEE  Std(#130)  802.11  architecture  ) | O.1  CF33: M | Yes  No  |
| \*CF2 | Independent station (neither an AP nor a  mesh STA) | 4.3  (Componen  ts of the  IEEE  Std(#130)  802.11  architecture  ) | O.1  CF33: M | Yes  No  |
| \*CF2.4(11ad) | Operation in a PBSS | 4.3.3 (The personal BSS  (PBSS)(11ad)(Ed)) | CF2&(not CF25 OR not CF32):O | Yes  No  |
| \*CF6 | Orthogonal frequency division multiplexing (OFDM) PHY | --- | O.2 CF16.2:M(11ad) CF32:M(11ah) | Yes  No  |
| \* CF12 | Quality of service (QoS) supported | 9.21 (HCF), 9.23 (Block acknowledgment (block  ack)(#2069)), 4.3.11(High  throughput(#1533)(HT) STA), 4.3.17.3(Mesh STA) | O  (CF16 OR CF21 OR  CF22):(11ae)M  CF25:M(11ad)  CF32:M | Yes  No  N/A  |
| \*CF21 | Mesh station | 4.3.17 (Mesh BSS: IEEE Std(#130) 802.11 wireless  mesh network) | (not CF25) & (not CF32): O.1(#2485) | Yes  No  N/A  |
| \* CF32 | Sub 1 GHz (S1G) features | 8.4.2.170k (S1G Capabilities element) | O.2 | Yes  No  N/A  |
| \*CF33 | Relay | 9.49 (Relay operation) | O.1 | Yes  No  N/A  |

B.4.4 MAC protocol

*Change table B.4.4.2 as follows (only changed rows are shown):*

Note: FT43 and all subsequent numbers, FR44 and all subsequent numbers are ANA numbers and may be changed in the future based on ANA allocation.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| B.4.4.2 MAC frames | | | | |
| Item | MAC frame | References | Status | Support |
|  | Is transmission of the following  MAC frames supported? |  |  |  |
| **...** |  |  |  |  |
| FT7 | Beacon | Clause 8  (Frame  formats) | (not CF2.3 & not CF32):M  (CF27& not CF32):M | Yes  No  N/A  |
| **...** |  |  |  |  |
| FT43 | TACK | Clause 8  (Frame  formats) | (CF32 & S1GM6.2):M  (CF32 & not S1GM6): O | Yes  No  N/A  |
| FT44 | S1G Beacon | Clause 8  (Frame  formats) | (CF1 & CF32):M | Yes  No  N/A  |
| FT45 | Resource Allocation | Clause 8  (Frame  formats) | (CF1 & CF32 & S1GM22.5): O | Yes  No  N/A  |
| FT46 | NDP MAC Frames | 8.9  (NDP MAC frames) | CF32: M | Yes  No  N/A  |
| FT46.1 | NDP CTS | CF32: M | Yes  No  N/A  |
| FT46.2 | NDP PS-Poll | (CF2 & CF32 ):O | Yes  No  N/A  |
| FT46.3 | NDP Ack | CF32: M | Yes  No  N/A  |
| FT46.4 | NDP PS-Poll-Ack | (CF1 & CF32 & FR47.2):M | Yes  No  N/A  |
| FT46.5 | NDP BlockAck | (CF32 & HTM5.3): M | Yes  No  N/A  |
| FT46.6 | NDP Beamforming Report Poll | CF32& CF1 :O | Yes  No  N/A  |
| FT46.7 | NDP Paging | (CF32 & S1GM6.11): M | Yes  No  N/A  |
| FT46.8 | NDP Probe Request | (CF32 & CF2 & S1GM4.5): M | Yes  No  N/A  |
| FT46.9 | NDP CF-End | CF32:O | Yes  No  N/A  |
| FT47 | S1G Action frame | 8.6.24  (S1G Action frame details) | CF32: M | Yes  No  N/A  |
| FT47.1 | AID Switch Request frame | (CF2 & CF32 & (S1GM13 or S1GM18)):M | Yes  No  N/A  |
| FT47.2 | AID Switch Response frame | (CF1 & CF32 & (S1GM13 or S1GM18)):M | Yes  No  N/A  |
| FT47.3 | Sync Control frame | (CF1 & CF32 & S1GM8.2):M | Yes  No  N/A  |
| FT47.4 | STA Information Announcement frame | (CF2 & CF32 & S1GM18):M | Yes  No  N/A  |
| FT47.5 | EDCA Parameter Set frame | (CF1 & CF32):O | Yes  No  N/A  |
| FT47.6 | Activity Specification frame | (CF2 & CF32 & S1GM21):M | Yes  No  N/A  |
| FT47.7 | TWT Setup frame | (CF32 & S1GM6.3):M | Yes  No  N/A  |
| FT47.8 | TWT Teardown frame | (CF32 & S1GM6.5):M | Yes  No  N/A  |
| FT47.9 | Sectorized Group ID List frame | (CF1 & CF32 & S1GM11):M | Yes  No  N/A  |
| FT47.10 | Sector ID feedback frame | (CF2 & CF32 & S1GM11):M | Yes  No  N/A  |
| FT47.11 | Header Compression Request frame |  | (CF32 & S1GM16):O | Yes  No  N/A  |
| FT47.12 | Header Compression Response frame |  | CF32: M | Yes  No  N/A  |
| FT48 | Relay Action frame | 8.6.25 (Relay Action frame details) | RL1:M | Yes  No  N/A  |
| FT48.1 | Reachable Address Update frame | RL1:M | Yes  No  N/A  |
| FT49 | Flow Control Action frame | 8.6.26 (Flow Control Action frame details) | CF32:M | Yes  No  N/A  |
| FT49.1 | Flow Suspend frame | (CF32 & S1GM17.1):M | Yes  No  N/A  |
| FT49.2 | Flow Resume frame | (CF32 & S1GM17.1):O | Yes  No  N/A  |
| FT50 | Control Response MCS Negotiation frame | 8.6.27 (Control Response MCS Negotiation frame details) | CF32 & S1GM28:M | Yes  No  N/A  |
| FT50.1 | Control Response MCS Negotiation Request | (CF32 & S1GM28):O | Yes  No  N/A  |
| FT50.2 | Control Response MCS Negotiation Response | (CF32 & S1GM28):M | Yes  No  N/A  |
| FT51 | Short frame | 8.8  (MAC frame format for short frames) | CF32:O | Yes  No  N/A  |
| FT51.1 | STACK frame | (CF32 & S1GM6.2 or S1GM6.1):M | Yes  No  N/A  |
| FT51.2 | BAT frame | (CF32 & S1GM6.2 & QB4.1 ):M | Yes  No  N/A  |
| FT51.3 | Short Action frame | CF32:O | Yes  No  N/A  |
| FT51.4 | Short Action No Ack frame | CF32:O | Yes  No  N/A  |
| FT51.5 | Short Probe Response frame | (CF1 & CF32):O | Yes  No  N/A  |
| FT51.6 | Dynamic A-MSDU format | (CF32 & S1GM3.1):M | Yes  No  N/A  |
| FT51.7 | Short Data frame | CF32:O  RL6:M  (CF32 & S1GM13):O | Yes  No  N/A  |
|  | Is reception of the following  MAC frames supported? |  |  |  |
| **...** |  |  |  |  |
| FR7 | Beacon | Clause 8  (Frame  formats) | (not CF2.3 and not CF32):M  (CF27 & not CF32):M | Yes  No  N/A  |
| ... |  |  |  |  |
| FR44 | TACK | Clause 8  (Frame  formats) | (CF1 & CF32):O  (CF2 & CF32 & S1GM7.3 or S1GM6.1):M | Yes  No  N/A  |
| FR45 | S1G Beacon | Clause 8  (Frame  formats) | CF32:M | Yes  No  N/A  |
| FR46 | Resource Allocation | Clause 8  (Frame  formats) | (CF2 & CF32 & S1GM22.5):M | Yes  No  N/A  |
| FR47 | NDP MAC Frames | 8.3.5  (NDP MAC frames) | CF32:M | Yes  No  N/A  |
| FR47.1 | NDP CTS | CF32:M | Yes  No  N/A  |
| FR47.2 | NDP PS-Poll | (CF1 & CF32):O | Yes  No  N/A  |
| FR47.3 | NDP ACK | CF32:M | Yes  No  N/A  |
| FR47.4 | NDP PS-Poll-Ack | (CF2 & CF32 & FT46.2):M | Yes  No  N/A  |
| FR47.5 | NDP BlockAck | (CF32 & HTM5.3):M | Yes  No  N/A  |
| FR47.6 | NDP Beamforming Report Poll | (CF2 & CF32):O | Yes  No  N/A  |
| FR47.7 | NDP Paging | (CF32 & S1GM6.9):M | Yes  No  N/A  |
| FR47.8 | NDP Probe Request | (CF1 & CF32):M | Yes  No  N/A  |
| FR47.9 | NDP CF-End | (CF2 & CF32):O | Yes  No  N/A  |
| FR48 | S1G Action frame | 8.6.24  (S1G Action frame details) | CF32:M | Yes  No  N/A  |
| FR48.1 | AID Switch Request frame | (CF2 & CF32 & (S1GM13 or S1GM18)):M | Yes  No  N/A  |
| FR48.2 | AID Switch Response frame | (CF1 & CF32 & (S1GM13 or S1GM18)):M | Yes  No  N/A  |
| FR48.3 | Synch Control frame | (CF2 & CF32 & S1GM8.1):M | Yes  No  N/A  |
| FR48.4 | STA Information Announcement frame | (CF1 & CF32 & S1GM18):M | Yes  No  N/A  |
| FR48.5 | EDCA Parameter Set frame | (CF2 & CF32):M | Yes  No  N/A  |
| FR48.6 | Activity Specification frame | (CF1 & CF32 & S1GM21):M | Yes  No  N/A  |
| FR48.7 | TWT Setup frame | (CF32 & S1GM6.2):M | Yes  No  N/A  |
| FR48.8 | TWT Teardown frame | (CF32 & S1GM6.5):M | Yes  No  N/A  |
| FR48.9 | Sectorized Group ID List frame | (CF2 & CF32 & S1GM11):M | Yes  No  N/A  |
| FR48.10 | Sector ID feedback frame | (CF1 & CF32 & S1GM11):M | Yes  No  N/A  |
| FR48.11 | Header Compression Request frame | CF32: M | Yes  No  N/A  |
| FR48.12 | Header Compression Response frame |  | (CF32 & FT47.11):M | Yes  No  N/A  |
| FR49 | Relay Action frame | 8.6.25 (Relay Action frame details) | (CF1 & CF32):O | Yes  No  N/A  |
| FR49.1 | Reachable Address Update frame | RL1:M | Yes  No  N/A  |
| FR50 | Flow Control Action frame | 8.6.26 (Flow Control Action frame details) | (CF2 & CF32):O | Yes  No  N/A  |
| FR50.1 | Flow Suspend frame | (CF2 & CF32 & S1GM17):M | Yes  No  N/A  |
| FR50.2 | Flow Resume frame | (CF2 & CF32 & S1GM17):M | Yes  No  N/A  |
| FR51 | Control Response MCS Negotiation frame | 8.6.27 (Control Response MCS Negotiation frame details) | CF32 & S1GM28:M | Yes  No  N/A  |
| FR51.1 | Control Response MCS Negotiation Request | (CF32 & S1GM28):M | Yes  No  N/A  |
| FR51.2 | Control Response MCS Negotiation Response | (CF32 & S1GM28):M | Yes  No  N/A  |
| FR52 | Short frame | 8.7  (MAC frame format for short frames) | CF32:M | Yes  No  N/A  |
| FR52.1 | STACK frame | (CF32 & S1GM6.1):M | Yes  No  N/A  |
| FR52.2 | BAT frame | (CF32 & S1GM6.1 & QB4.1 or):M | Yes  No  N/A  |
| FR52.3 | Short Action frame | CF32:M | Yes  No  N/A  |
| FR52.4 | Short Action No Ack frame | CF32:M | Yes  No  N/A  |
| FR52.5 | Short Probe Response frame | CF32:O | Yes  No  N/A  |
| FR52.6 | Dynamic A-MSDU format | (CF32 & S1GM3.2):M | Yes  No  N/A  |
| FR52.7 | Short Data frame | CF32:M | Yes  No  N/A  |

*Change table B.4.4.2 as follows (only changed rows are shown):*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| B.4.4.4 MAC addressing functions | | | | |
| Item | MAC Address function | References | Status | Support |
|  | Are the following MAC Addressing  functions supported? |  |  |  |
| **...** |  |  |  |  |
| AD12 | Group addressed Data  frame addressing (4 address frame) | 8.2.3 (General  frame format),  8.2.4.1 (Frame Control field),  8.2.4.3  (Address  fields) | CF33: O  RL2:O  CF1: O  CF2: O | Yes  No  N/A  |
| AD13 | Individually addressed Data  frame addressing (4 address frame) | CF33: O  RL2:O  CF1: O  CF2: O | Yes  No  N/A  |
| AD14 | Group addressed short Data  frame addressing (4 address frame) | 8.8 (MAC frame format for short frames)  9.49.2 (Addressing and forwarding of group addressed relay frames)  9.49.1 (Addressing and forwarding of individually addressed relay frames) | CF33: O  RL2:O  CF32: O | Yes  No  N/A  |
| AD15 | Individually addressed short Data  frame addressing (4 address frame) | CF33: O  RL2:O  CF32: O | Yes  No  N/A  |

*Change table B.4.13 as follows (only changed rows are shown):*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| B. 4.13 QoS enhanced distributed channel access (EDCA) | | | | |
| Item | Protocol capability | References | Status | Support |
| **...** |  |  |  |  |
| QD1 | Support for four transmit queues with a separate channel access entity associated with each | 9.2.4.2 (HCF (#2203)contention based channel access (EDCA)), 9.21.2.1 (Reference implementation) | CF27&(11ad)CF12: M CF32 & S1GM20.5: M  CF32 & S1GM20.4:O | Yes  No  N/A  |
| QD3 | Multiple frame transmission support | 9.21.2.5 (Multiple frame transmission in an EDCA TXOP) | CF12 OR CF25(11ad) OR CF32:O | Yes  No  N/A  |

*Change table B.4.17.1 as follows (only changed rows are shown):*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| B. 4. 17.1 HT MAC features | | | | |
| Item | Protocol capability | References | Status | Support |
| **...** |  |  |  |  |
| HTM3 | MPDU aggregation |  |  | Yes  No  N/A  |
| HTM3.1 | Reception of A-MPDU | 8.4.2.55.3 (AMPDU Parameters field), 11.4 (RSNA confidentiality and integrity protocols), 9.12.2 (AMPDU length limit rules) | (CF16 & not CF32):M CF32: O | Yes  No  N/A  |
| HTM3.2 | A-MPDU format | 8.7.1 (AMPDU format) | (CF16 or CF32):M | Yes  No  N/A  |
| HTM3.3 | A-MPDU contents | 8.7.3 (AMPDU contents) | (CF16 & not CF32):M CF32: M | Yes  No  N/A  |
| HTM3.4 | A-MPDU frame exchange sequences | 9.21.2.5 (Multiple frame transmission in an EDCA TXOP) | (CF16 & not CF32):M CF32: O | Yes  No  N/A  |
| HTM3.5 | Transmission of A-MPDU | 8.4.2.55.3 (AMPDU Parameters field), 11.4 (RSNA confidentiality and integrity protocols) | CF16:O CF29:M(11ac) CF32: O | Yes  No  N/A  |
| HTM4 | MSDU aggregation |  |  | Yes  No  N/A  |
| HTM4.1 | Reception of A-MSDUs | 8.2.4.5 (QoS Control field), 8.3.2.2 (Aggregate MSDU(11ad) (A-MSDU) format) | (CF16 & not CF32):M | Yes  No  N/A  |
| HTM4.2 | A-MSDU format | 8.3.2.2 (Aggregate MSDU(11ad) (A-MSDU) format) | (CF16 & not CF32):M  CF33 & ((not AD12) & (not AD14)): M  CF33 &((not AD13) & (not AD15)): M  RL2 & ((not AD12) & (not AD14)): M  RL2 & ((not AD13) & (not AD15)): M  CF33 & ( AD12 OR ( AD14): O  CF33 & ( AD13 OR AD15): O  RL2 & (AD12 OR AD14): O  RL2 & ( AD13 OR AD15): O | Yes  No  N/A  |
| HTM4.3 | A-MSDU content | 8.3.2.2 (Aggregate MSDU(11ad) (A-MSDU) format) | (CF16 & not CF32):M | Yes  No  N/A  |
| HTM4.4 | Transmission of A-MSDUs | 8.3.2.2 (Aggregate MSDU(11ad) (A-MSDU) format), 8.2.4.5 (QoS Control field) | (CF16 & not CF32):O | Yes  No  N/A  |
| **...** |  |  |  |  |
| HTM5.3 | HT-immediate block ack(#2069) extensions | 9.23.7 (HT immediate block ack(#2069) extensions) | (CF16 & not CF32):M  CF32:O (CF32 & S1GM20.5): M | Yes  No  N/A  |
| HTM5.4 | HT-delayed block ack(#2069) extensions | 9.23.8 (HT delayed block ack(#2069) extensions) | (CF16 & QB4.2 & not CF32):M CF32: O | Yes  No  N/A  |
| **...** |  |  |  |  |
| HTM16.2 | Dual CTS protection The use of the dual CTS mechanism is deprecated.(#2190) | 9.3.2.8 (Dual CTS protection) | HTP2.11 & not CF32: O | Yes  No  N/A  |

*Change table B.4.19 as follows (only changed rows are shown):*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| B.4.19 WNM extensions | | | | |
| Item | Protocol capability | References | Status | Support |
| **...** |  |  |  |  |
| \*WNM11 | BSS max idle period | 10.24.13 (BSS  max  idle period  management) | (CF19 OR  CF32):M | Yes  No  N/A  |

*Change table B.4.25 as follows (only changed rows are shown):*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| B. 4.25.1 VHT MAC features (11ac) | | | | |
| Item | Protocol capability | References | Status | Support |
| **...** |  |  |  |  |
| VHTM3 | Link adaptation |  |  |  |
| VHTM3.1 | Use of the VHT variant HT Control field for link adaptation in immediate response exchange. | 8.2.4.6 (HT Control field), 8.3.3.14, 9.30.3 (Link adaptation using the VHT variant HT Control field(11ac)), 9.9 HT Control field operation | CF29:O CF32: O | Yes  No  N/A  |
| VHTM11 | VHT single MPDU format | 9.12.7 (Setting  the EOF field of the MPDU  delimiter(11ac)) | CF29:M  CF32: M | Yes  No  N/A  |

*Add table B.4.26:*

|  |
| --- |
| B.4.26 S1G MAC features |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Item | Protocol capability | References | Status | Support |
|  | Are the following MAC protocol features supported? |  |  |  |
| S1GM1 | S1G Capabilities signaling |  | CF32:M | Yes  No  N/A  |
| S1GM1.1 | S1G Capabilities element | 8.4.2.170k  (S1G Capabilities element) | CF32:M | Yes  No  N/A  |
| S1GM1.2 | Signaling of S1G Capabilities in Probe Request, (Re) Association Request frames | 8.4.2.170k  (S1G Capabilities element), 8.3.3.5, 8.3.3.7, 8.3.3.9 | (CF2 & CF32):M | Yes  No  N/A  |
| S1GM1.3 | Signaling of S1G Capabilities in S1G Beacon, Probe Response, (Re) Association Response frames | 8.4.2.170k  (S1G Capabilities element), 8.3.3.2, 8.3.3.6, 8.3.3.8, 8.3.3.10 | (CF1 & CF32):M | Yes  No  N/A  |
| S1GM2 | S1G Operation |  | CF32:M | Yes  No  N/A  |
| S1GM2.1 | S1G Operation element | 8.4.2.170w (S1G Operation element) | CF32:M | Yes  No  N/A  |
| S1GM2.2 | Signaling of S1G Operation in S1G Beacon, Probe Response | 8.4.2.170w (S1G Operation element), 8.3.3.2, 8.3.3.10 | (CF1 & CF32):M | Yes  No  N/A  |
| S1GM3 | MSDU Aggregation | 9.11 (A-MSDU operation) | CF32:O | Yes  No  N/A  |
| S1GM3.1 | Transmission of Dynamic A-MSDU | CF32:O | Yes  No  N/A  |
| S1GM3.2 | Reception of Dynamic A-MSDU | CF32:O | Yes  No  N/A  |
| S1GM4 | Timing synchronization function (TSF) |  | CF32:M | Yes  No  N/A  |
| S1GM4.1 | Generation of S1G Beacon | 10.1.3.10.2 (Generation of S1G Beacon) | (CF1 & CF32): M | Yes  No  N/A  |
| S1GM4.1.1 | S1G Beacon generation at TBTT |  | (CF1 & CF32): M |  |
| S1GM4.1.2 | S1G Beacon generation at TSBTT |  | (CF1 & CF32): O | Yes  No  N/A  |
| S1GM4.1.3 | S1G Beacon reception at TBTT |  | (CF2 & CF32): M | Yes  No  N/A  |
| S1GM4.1.4 | S1G Beacon reception at TSBTT |  | (CF2 & CF32): M | Yes  No  N/A  |
| S1GM4.2 | TSF timer accuracy with S1G Beacon | 10.1.3.10.3 (TSF timer accuracy with S1G Beacon) | CF32: M | Yes  No  N/A  |
| S1GM4.3 | TSF timer accuracy with TACK, STACK, BAT, Short Probe Response frames |  | CF32: O | Yes  No  N/A  |
| S1GM4.4 | Signaling Probe Response Option element in Probe Request frame |  | CF32: O | Yes  No  N/A  |
| S1GM4.5 | Active scanning using NDP Probe Request frame | 10.1.4.3.3b (NDP Probing) | CF32: O | Yes  No  N/A  |
| S1GM4.6 | Sending Short Probe Response frame | 10.1.4.3.4 (Sending a probe response), 10.1.4.3.4b (NDP Probing) | (CF1 & CF32): O | Yes  No  N/A  |
| S1GM5 | Reverse direction protocol | 9.26.3 (Support for RD) | CF32:O | Yes  No  N/A  |
| S1GM5.1 | Initiation of RD protocol | CF32:O | Yes  No  N/A  |
| S1GM5.2 | Response to RD request | CF32:O | Yes  No  N/A  |
| S1GM6 | Target Wake Time (TWT) Operation | 9.41 (Target Wake Time (TWT)) | CF32:O | Yes  No  N/A  |
| S1GM6.1 | Assume the role of TWT STA | 9.42.1 (TWT overview) | (CF32 & S1GM6):O.1 | Yes  No  N/A  |
| S1GM6.2 | Assume the role of TWT Peer STA | 9.42.1 (TWT overview) | (CF32 & S1GM6):O.1 | Yes  No  N/A  |
| S1GM6.3 | Request TWT Setup | 9.42.1 (TWT overview) | (CF32 & S1GM6.1):O | Yes  No  N/A  |
| S1GM6.4 | Response to TWT Setup request | 9.42.1 (TWT overview) | (CF32 & S1GM6.2):M | Yes  No  N/A  |
| S1GM6.5 | TWT Teardown | 9.42.8 (TWT Teardown) | (CF32 & S1GM6):O | Yes  No  N/A  |
| S1GM6.6 | TWT acknowledgement procedure | 9.42.2 (TWT acknowledgement procedure) | (CF32 & S1GM6):M | Yes  No  N/A  |
| S1GM6.7 | Explicit TWT operation | 9.42.3 (Explicit TWT operation) | (CF32 & S1GM6):O.2 | Yes  No  N/A  |
| S1GM6.8 | Implicit TWT operation | 9.42.4 (Implicit TWT operation) | (CF32 & S1GM6):O.2 | Yes  No  N/A  |
| S1GM6.9 | Request NDP Paging Setup | 9.42.6 (NDP Paging Setup) | (CF32 & S1GM6.1):O | Yes  No  N/A  |
| S1GM6.10 | Accept the NDP Paging Setup request | 9.42.6 (NDP Paging Setup) | (CF32 & S1GM6.2):O | Yes  No  N/A  |
| S1GM6.11 | Schedule NDP Paging frame as the first frame in a TWT |  | (CF32 & S1GM10):M | Yes  No  N/A  |
| S1GM6.12 | TWT Grouping | 9.42.5 (TWT Grouping) | (CF32 & S1GM6):O | Yes  No  N/A  |
| S1GM7 | Non-TIM STA operation | 9.43 (Non-TIM STA operation) | (CF2 & CF32):O  (CF1 & CF32 & (S1GM20.1 OR S1GM20.3)): M | Yes  No  N/A  |
| S1GM7.1 | Request Non-TIM Mode | 10.2.2.2 (Non-AP STA Power Management modes) | (CF2 & CF32 & S1GM7):O | Yes  No  N/A  |
| S1GM7.2 | Response to Non-TIM Mode request | 10.2.2.2 (Non-AP STA Power Management modes) | (CF1 & CF32 & S1GM7):M | Yes  No  N/A  |
| S1GM7.3 | Request rescheduling of awake/doze cycle | 9.43.2 (Rescheduling of awake/doze cycle) | (CF2 & CF32 & S1GM7):O | Yes  No  N/A  |
| S1GM7.4 | Reschedule awake/doze cycle of non-TIM STAs | 9.43.2 (Rescheduling of awake/doze cycle) | (CF1 & CF32 & S1GM7):O | Yes  No  N/A  |
| S1GM7.5 | Temporary PS Mode Switch to TIM mode | 9.43.2 (Rescheduling of awake/doze cycle) | (CF2 & CF32 & S1GM7):O | Yes  No  N/A  |
| S1GM7.6 | Listen interval update procedure for Non-TIM STAs |  | (CF32 & S1GM7):O | Yes  No  N/A  |
| S1GM7.7 | Resource protection for non-TIM STAs | 9.43.1 (Resource protection for non-TIM STAs) | (CF1 & CF32 & S1GM7):O | Yes  No  N/A  |
| S1GM7.8 | Resource protection for non-TIM STAs using periodic RAW (PRAW) operation | 9.43.1.1 (Resource protection for non-TIM STAs using periodic RAW (PRAW) operation) | (CF1 & CF32 & S1GM7):O | Yes  No  N/A  |
| S1GM8 | Synchronization (Sync) Frame Operation | 9.44 (Synchronization (Sync) Frame Operation) | CF32:O | Yes  No  N/A  |
| S1GM8.1 | Request for a sync frame transmission | 9.44.1 (Sync frame transmission procedure for uplink traffic) | (CF2 & CF32 & S1GM8):O | Yes  No  N/A  |
| S1GM8.2 | Schedule a sync frame transmission | (CF1 & CF32 & S1GM8):M | Yes  No  N/A  |
| S1GM8.3 | Request for time slot protection | (CF2 & CF32 & S1GM8):O | Yes  No  N/A  |
| S1GM8.4 | Protect the time slot assigned to the STA that requested for time slot protection. | (CF1 & CF32 & S1GM8):M | Yes  No  N/A  |
| S1GM8.5 | Respond to sync frame |  | (CF2 & CF32 & S1GM8):M | Yes  No  N/A  |
| S1GM9 | Speed frame exchange | 9.45 (Speed frame exchange) | CF32:O | Yes  No  N/A  |
| S1GM9.1 | Act as SF Initiator | 9.45.2 (Rules for SF exchange) | (CF32 & S1GM9):O | Yes  No  N/A  |
| S1GM9.2 | Act as SF Responder | (CF32 & S1GM9):M | Yes  No  N/A  |
| S1GM10 | Subchannel Selective Transmission (SST) | 9.47 (Subchannel Selective Transmission (SST)) | CF32:O | Yes  No  N/A  |
| S1GM11 | Sectorized beam operation | 9.48 (Sectorized beam operation) | CF32:O | Yes  No  N/A  |
| S1GM11.1 | Support for Group Sectorization Operation | 9.48.3 (Group sectorization operation) | (CF1 & CF32 & S1GM11):O.3  (CF2 & CF32 & S1GM11):M | Yes  No  N/A  |
| S1GM11.2 | Support for TXOP-based Sectorization Operation | 9.48.4 (TXOP-based sectorization operation) | (CF1 & CF32 & S1GM11):O.3  (CF2 & CF32 & S1GM11):M | Yes  No  N/A  |
| S1GM11.3 | Transmission of S1G Sector Operation element with Sectorization Type field equal to 0 | 9.48.2 (Sector Capabilities Exchange) | (CF1 & CF32 & S1GM11.1):M | Yes  No  N/A  |
| S1GM11.4 | Transmission of S1G Sector Operation element with Sectorization Type field equal to 1 | (CF1 & CF32 & S1GM11.2):M | Yes  No  N/A  |
| S1GM11.5 | Sector training operation | (CF32 & S1GM11):O | Yes  No  N/A  |
| S1GM11.6 | Send back Sector ID feedback to associated AP | (CF2 & CF32 & S1GM11):O | Yes  No  N/A  |
| S1GM12 | 1 MHz Control Response Preamble Support | 9.7.6.6 Channel Width selection for Control frames | CF32: O | Yes  No  N/A  |
| S1GM13 | Multicast AID | 9.50 ( Multicast AID) | CF32:O | Yes  No  N/A  |
| S1GM14 | Traveling Pilot Operation | 9.51 (Traveling Pilot Operation) | CF32:O | Yes  No  N/A  |
| S1GM15 | Bitmap Protection for NDP BlockAck frames | 9.52 (Bitmap Protection for NDP BlockAck frames) | (CF32 & (FT47 OR FR 48)): M | Yes  No  N/A  |
| S1GM16 | Header Compression procedure | 9.53 (Header Compression procedure) | CF32:O | Yes  No  N/A  |
| S1GM16.1 | Signaling Header Compression element in (Re-)Association Request frames | (CF2 & CF32 & S1GM16):O | Yes  No  N/A  |
| S1GM16.2 | Signaling Header Compression element in (Re-)Association Response frames | (CF1 & CF32 & S1GM16):M | Yes  No  N/A  |
| S1GM16.3 | Request header compression procedure |  | (CF32 & S1GM16):O | Yes  No  N/A  |
| S1GM16.4 | Store the optional fields indicated in the Header Compression Request |  | (CF32 & S1GM16):O | Yes  No  N/A  |
| S1GM16.5 | Send back the Header Compression Response |  | CF32:M | Yes  No  N/A  |
| S1GM17 | Flow control | 9.56 (Flow control) | CF32:M | Yes  No  N/A  |
| S1GM17.1 | Request flow suspension/resumption | CF32:O | Yes  No  N/A  |
| S1GM17.2 | Flow suspension in response to Flow Suspend Action frame or NDP ACK frame | (CF2 & CF32):M | Yes  No  N/A  |
| S1GM17.3 | Flow suspension in response to STACK or BAT or TACK frame |  | (CF2 & CF32 & S1GM6.6):M | Yes  No  N/A  |
| S1GM17.4 | Flow resumption upon receiving a Flow Resumption Action frame |  | (CF2 & CF32):O | Yes  No  N/A  |
| S1GM18 | Dynamic AID assignment operation | 10.45 (Dynamic AID assignment operation) | CF32:O | Yes  No  N/A  |
| S1GM18.1 | Request AID switch | (CF2 & CF32 & S1GM18):O | Yes  No  N/A  |
| S1GM18.2 | Respond to request for AID switch | (CF1 & CF32 & S1GM18):M | Yes  No  N/A  |
| S1GM18.3 | Issue unsolicited AID switch instruction | (CF1 & CF32 & S1GM18):O | Yes  No  N/A  |
| S1GM18.4 | Respond to unsolicited AID switch instruction | (CF2 & CF32 & S1GM18):O | Yes  No  N/A  |
| S1GM19 | System information update procedure | 10.46 (System information update procedure) | CF32:M | Yes  No  N/A  |
| S1GM19.1 | Update the Change Sequence field in S1G Beacon frame | (CF1 & CF32):M | Yes  No  N/A  |
| S1GM19.2 | Respond to changes in the Change Sequence field in S1G Beacon frame | (CF2 & CF32):M | Yes  No  N/A  |
| S1GM19.3 | Respond to probe request frames that contain the Change Sequence field | (CF1 & CF32):O | Yes  No  N/A  |
| S1GM20 | STA types | 10.48 (Sensor Only BSS) | CF32:M | Yes  No  N/A  |
| S1GM20.1 | Support for Sensor type STA | (CF1 & CF32):O.5 | Yes  No  N/A  |
| S1GM20.2 | Support for non-Sensor type STA | (CF1 & CF32):O.5 | Yes  No  N/A  |
| S1GM20.3 | Support for both Sensor type and non-Sensor type STA | (CF1 & CF32):O.5 | Yes  No  N/A  |
| S1GM20.4 | Assume the role of Sensor type STA | (CF2 & CF32):O.6 | Yes  No  N/A  |
| S1GM20.5 | Assume the role of non-Sensor type STA | (CF2 & CF32):O.6 | Yes  No  N/A  |
| S1GM21 | Support for energy limited STAs | 10.49 (Support for energy limited STAs) | (CF1 & CF32 & (S1GM20.1 OR S1GM20.3)):M  (CF1 & CF32 & S1GM20.2):O  (CF2 & CF32 & S1GM20.4):O | Yes  No  N/A  |
| S1GM22 | S1G Channel Access |  | CF32: M | Yes  No  N/A  |
| S1GM22.1 | Response indication deferral (RID) function | 9.3.2.1 (CS  mechanism),  9.3.2.4 (Setting and resetting the NAV),  9.3.2.4a (Setting and resetting the RID),  9.3.2.13 (Response Indication procedure) | CF32: M | Yes  No  N/A  |
| S1GM22.2 | Dynamic bandwidth operation | 9.3.2.7 (CTS and DMG CTS procedure) | CF32: O | Yes  No  N/A  |
| S1GM22.3 | Fragment BA procedure | 9.3.2.10a (Fragment BA procedure) | CF32: O | Yes  No  N/A  |
| S1GM22.4 | Support for only one transmit queue with AC\_BE access category | 9.2.4.2 (HCF (#2203)conte ntion based channel access (EDCA)), 9.21.2.1 (Reference implementation) | CF32 & S1GM20.4: M | Yes  No  N/A  |
| S1GM22.5 | Restricted Access Window (RAW) Operation | 9.20.5 (Restricted Access Window (RAW) Operation) | CF32:O | Yes  No  N/A  |
| S1GM22.5.1 | EDCA backoff procedure in Generic RAW or Triggering Frame RAW | 9.21.5.5 (EDCA backoff procedure in Generic RAW or Triggering Frame RAW) | (CF1 & S1GM22.5):O  (CF2 & S1GM22.5):M | Yes  No  N/A  |
| S1GM22.5.2 | Deferral for Generic RAW, Triggering RAW, Sounding RAW and SIMPLEX RAW when RAW Type Option subfield indicates Non-TIM RAW |  | (CF2 & CF32 & S1GM7): O  (CF2 & CF32 & (not S1GM7)): M |  |
| S1GM22.5.3 | Deferral for SIMPLEX RAW when RAW Type Option subfield does not indicates Non-TIM RAW |  | (CF2 & CF32): O |  |
| S1GM23 | Traffic indication map (TIM) | 10.2.2.3 (AP TIM transmissions), 10.2.2.4 (TIM types) | CF1: M | Yes  No  N/A  |
| S1GM23.1 | Encode partial virtual bitmap in Block Bitmap mode | 8.4.2.6.1 (S1G Partial Virtual Bitmap encoding) | (CF1 & CF32): O.5 | Yes  No  N/A  |
| S1GM23.1.1 | Encode partial virtual bitmap in Single AID mode |  | (CF1 & CF32): O.5 | Yes  No  N/A  |
| S1GM23.1.2 | Encode partial virtual bitmap in OLB mode |  | (CF1 & CF32): O.5 | Yes  No  N/A  |
| S1GM23.1.3 | Encode partial virtual bitmap in ADE mode |  | (CF1 & CF32): O | Yes  No  N/A  |
| S1GM23.1.4 | Decode partial virtual bitmap encoded in Block Bitmap mode |  | (CF2 & CF32 & not S1GM7):M | Yes  No  N/A  |
| S1GM23.1.5 | Decode partial virtual bitmap encoded in Single AID mode |  | (CF2 & CF32 & not S1GM7):M | Yes  No  N/A  |
| S1GM23.1.6 | Decode partial virtual bitmap encoded in OLB mode |  | (CF2 & CF32 & not S1GM7):M | Yes  No  N/A  |
| S1GM23.1.7 | Decode partial virtual bitmap encoded in ADE mode |  | (CF2 & CF32 & not S1GM7):O | Yes  No  N/A  |
| S1GM23.2 | Page slicing | 9.46 (Page Slicing) | (CF1 & CF32): O  (CF2 & CF32):O | Yes  No  N/A  |
| S1GM23.2.1 | Divide the TIM into page slices |  | (CF1 & CF32 & S1GM23.2): O | Yes  No  N/A  |
| S1GM23.2.2 | Decode the TIM divided into page slices |  | (CF2 & CF32 & S1GM23.2):M | Yes  No  N/A  |
| S1GM24 | AP power management | 10.2.2.19 (AP Power management) | (CF1 & CF32): O | Yes  No  N/A  |
| S1GM25 | Association and reassociation | 10.3 (STA  authentication  and association) | CF32: M | Yes  No  N/A  |
| S1GM25.1 | Service type indication during association | 10.3.5.11 (Service type indication during association) | (CF2 & CF32 & PC14):O | Yes  No  N/A  |
| S1GM25.2 | Authentication Control | 10.3.8 (Authentication Control) | CF32: O | Yes  No  N/A  |
| S1GM25.2.1 | Centralized authentication control |  | (CF1 & CF32 & S1GM25.2): O.2  (CF2 & CF32 & S1GM25.2): O | Yes  No  N/A  |
| S1GM25.2.2 | Distributed authentication control |  | (CF1 & CF32 & S1GM25.2): O.2  (CF2 & CF32): M | Yes  No  N/A  |
| S1GM26 | Robust security network association (RSNA) |  | O | Yes  No  |
| S1GM26.1 | PV1 CCMP MPDU format | 11.4.3.2 (CCMP MPDU format) | CF32 & ( FT51 or FR52): M | Yes  No  N/A  |
| S1GM26.2 | Local construction of CCMP Header for PV1 MPDUs | 11.4.3.2a (Construction of the CCMP Header for PV1 MPDUs) | CF32 & FR52: M | Yes  No  N/A  |
| S1GM26.3 | CCMP cryptographic encapsulation procedure for PV1 MPDUs | 11.4.3.3 (CCMP cryptographic encapsulation) | CF32 & FT51: M | Yes  No  N/A  |
| S1GM26.4 | CCMP decapsulation procedure for PV1 MPDUs | 11.4.3.4 (CCMP decapsulation) | CF32& FR52: M | Yes  No  N/A  |
| S1GM27 | Asymmetric Block Ack Operation | 9.7.6.5.2 (Selection of a rate or MCS), 9.7.6.5.4a (MCS for asymmetric Block Ack Operation) | CF32: O | Yes  No  N/A  |
| S1GM28 | Control Response MCS Negotiation | 9.7.6.5.4b Control Response MCS Negotiation | CF32: O | Yes  No  N/A  |
| S1GM29 | OBSS Mitigation Support | 9.7.6.6 (Channel Width selection for control frames) | CF32: O | Yes  No  N/A  |

*Add table B.4.27:*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| B.4.27 S1G PHY features | | | | |
| Item | IUT configuration | References | Status | Support |
|  | Are the following PHY protocol features supported? |  |  |  |
| S1GP1 | BSS bandwidth |  |  |  |
| S1GP1.1 | 1 MHz operation | 10.47.1 & 24.1.1 | CF32: M | Yes  No  N/A  |
| S1GP1.2 | 2 MHz operation | 10.47.1 & 24.1.1 | CF32: M | Yes  No  N/A  |
| S1GP1.3 | 4 MHz operation | 10.47.1 & 24.1.1 | CF32: O | Yes  No  N/A  |
| S1GP1.4 | 8 MHz operation | 10.47.1 & 24.1.1 | CF32: O | Yes  No  N/A  |
| S1GP1.5 | 16 MHz operation | 10.47.1 & 24.1.1 | CF32: O | Yes  No  N/A  |
| S1GP2 | Coding scheme |  |  |  |
| S1GP2.1 | Use of BCC code | 24.1.1 & 24.3.4 | CF32: M | Yes  No  N/A  |
| S1GP2.2 | Use of STBC code | 24.1.1 & 24.3.4 | CF32: O | Yes  No  N/A  |
| S1GP2.3 | Use of LDPC code | 24.1.1 & 24.3.4 | CF32: O | Yes  No  N/A  |
| S1GP3 | Demodulation scheme |  |  |  |
| S1GP3.1 | SIG-A of greater than or  equal to 2MHz long preamble format PPDU | 24.1.1 & 24.3.4.2.3 | CF32: M | Yes  No  N/A  |
| S1GP4 | PHY timing parameters |  |  |  |
| S1GP4.1 | Normal (long) guard interval | 24.1.1 & 24.3.6 | CF32: M | Yes  No  N/A  |
| S1GP4.2 | short guard interval | 24.1.1 & 24.3.6 | CF32: O | Yes  No  N/A  |
| S1GP5 | Use of S1G beamforming | 24.1.1 & 24.3.10 | CF32: O | Yes  No  N/A  |

**B.4.27 S1G PHY features (continued)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| S1GP6 | PPDU format |  |  |  |
| S1GP6.1 | 1MHz short preamble format PPDU | 24.1.1 & 24.3.2 | CF32: M | Yes  No  N/A  |
| S1GP6.2 | 2MHz short preamble format PPDU | 24.1.1 & 24.3.2 | CF32: M | Yes  No  N/A  |
| S1GP6.3 | Greater than 2MHz short preamble format PPDU | 24.1.1 & 24.3.2 | CF32: O | Yes  No  N/A  |
| S1GP6.4 | Greater than or equal to 2MHz long preamble format PPDU | 24.1.1 & 24.3.2 | CF32 & S1GP1.1: O  CF32 & S1GP1.2: O  CF32 & S1GP1.3: M  CF32 & S1GP1.4: M  CF32 & S1GP1.5: M | Yes  No  N/A  |
| S1GP6.5 | S1G 1MHz duplicated PPDU | 24.3.9.12.1 | CF32: O | Yes  No  N/A  |
| S1GP6.6 | S1G 2MHz duplicated PPDU | 24.3.9.12.2 | CF32 & S1GP1.3: M  CF32 & S1GP1.4: M  CF32 & S1GP1.5: M | Yes  No  N/A  |
| S1GP6.7 | Use of fixed pilots | 24.3.9.10 | CF32: M | Yes  No  N/A  |
| S1GP6.8 | Use of traveling pilots | 24.3.9.10 | CF32: O | Yes  No  N/A  |
| S1GP7 |  |  |  |  |
| S1GP7.1 | MCS0, Nss = 1 | 24.1.1 & 24.5 | CF32: M | Yes  No  N/A  |
| S1GP7.2 | MCS0, Nss = 2 | 24.1.1 & 24.5 | CF32: O | Yes  No  N/A  |
| S1GP7.3 | MCS0, Nss = 3 | 24.1.1 & 24.5 | CF32: O | Yes  No  N/A  |
| S1GP7.4 | MCS0, Nss = 4 | 24.1.1 & 24.5 | CF32: O | Yes  No  N/A  |
| S1GP7.5 | MCS1, Nss = 1 | 24.1.1 & 24.5 | CF32: M | Yes  No  N/A  |
| S1GP7.6 | MCS1, Nss = 2 | 24.1.1 & 24.5 | CF32: O | Yes  No  N/A  |
| S1GP7.7 | MCS1, Nss = 3 | 24.1.1 & 24.5 | CF32: O | Yes  No  N/A  |
| S1GP7.8 | MCS1, Nss = 4 | 24.1.1 & 24.5 | CF32: O | Yes  No  N/A  |
| S1GP7.9 | MCS2, Nss = 1 | 24.1.1 & 24.5 | CF32: M | Yes  No  N/A  |
| S1GP7.10 | MCS2, Nss = 2 | 24.1.1 & 24.5 | CF32: O | Yes  No  N/A  |
| S1GP7.11 | MCS2, Nss = 3 | 24.1.1 & 24.5 | CF32: O | Yes  No  N/A  |
| S1GP7.12 | MCS2, Nss = 4 | 24.1.1 & 24.5 | CF32: O | Yes  No  N/A  |

**B.4.27 S1G PHY features (continued)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| S1GP7.13 | MCS3, Nss = 1 | 24.1.1 & 24.5 | CF1 & CF32: M  CF2 & CF32: O | Yes  No  N/A  |
| S1GP7.14 | MCS3, Nss = 2 | 24.1.1 & 24.5 | S1GP7.13: O  CF2 & CF32: O | Yes  No  N/A  |
| S1GP7.15 | MCS3, Nss = 3 | 24.1.1 & 24.5 | S1GP7.13: O  CF2 & CF32: O | Yes  No  N/A  |
| S1GP7.16 | MCS3, Nss = 4 | 24.1.1 & 24.5 | S1GP7.13: O  CF2 & CF32: O | Yes  No  N/A  |
| S1GP7.17 | MCS4, Nss = 1 | 24.1.1 & 24.5 | CF1 & CF32: M  CF2 & CF32: O | Yes  No  N/A  |
| S1GP7.18 | MCS4, Nss = 2 | 24.1.1 & 24.5 | S1GP7.17: O  CF2 & CF32: O | Yes  No  N/A  |
| S1GP7.19 | MCS4, Nss = 3 | 24.1.1 & 24.5 | S1GP7.17: O  CF2 & CF32: O | Yes  No  N/A  |
| S1GP7.20 | MCS4, Nss = 4 | 24.1.1 & 24.5 | S1GP7.17: O  CF2 & CF32: O | Yes  No  N/A  |
| S1GP7.21 | MCS5, Nss = 1 | 24.1.1 & 24.5 | CF1 & CF32: M  CF2 & CF32: O | Yes  No  N/A  |
| S1GP7.22 | MCS5, Nss = 2 | 24.1.1 & 24.5 | S1GP7.21: O  CF2 & CF32: O | Yes  No  N/A  |
| S1GP7.23 | MCS5, Nss = 3 | 24.1.1 & 24.5 | S1GP7.21: O  CF2 & CF32: O | Yes  No  N/A  |
| S1GP7.24 | MCS5, Nss = 4 | 24.1.1 & 24.5 | S1GP7.21: O  CF2 & CF32: O | Yes  No  N/A  |
| S1GP7.25 | MCS6, Nss = 1 | 24.1.1 & 24.5 | CF1 & CF32: M  CF2 & CF32: O | Yes  No  N/A  |
| S1GP7.26 | MCS6, Nss = 2 | 24.1.1 & 24.5 | S1GP7.25: O  CF2 & CF32: O | Yes  No  N/A  |
| S1GP7.27 | MCS6, Nss = 3 | 24.1.1 & 24.5 | S1GP7.25: O  CF2 & CF32: O | Yes  No  N/A  |
| S1GP7.28 | MCS6, Nss = 4 | 24.1.1 & 24.5 | S1GP7.25: O  CF2 & CF32: O | Yes  No  N/A  |

**B.4.27 S1G PHY features (continued)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| S1GP7.29 | MCS7, Nss = 1 | 24.1.1 & 24.5 | CF1 & CF32: M  CF2 & CF32: O | Yes  No  N/A  |
| S1GP7.30 | MCS7, Nss = 2 | 24.1.1 & 24.5 | S1GP7.29: O  CF2 & CF32: O | Yes  No  N/A  |
| S1GP7.31 | MCS7, Nss = 3 | 24.1.1 & 24.5 | S1GP7.29: O  CF2 & CF32: O | Yes  No  N/A  |
| S1GP7.32 | MCS7, Nss = 4 | 24.1.1 & 24.5 | S1GP7.29: O  CF2 & CF32: O | Yes  No  N/A  |
| S1GP7.33 | MCS8, Nss = 1 | 24.1.1 & 24.5 | CF1 & CF32: O  CF2 & CF32: O | Yes  No  N/A  |
| S1GP7.34 | MCS8, Nss = 2 | 24.1.1 & 24.5 | S1GP7.33: O  CF2 & CF32: O | Yes  No  N/A  |
| S1GP7.35 | MCS8, Nss = 3 | 24.1.1 & 24.5 | S1GP7.33: O  CF2 & CF32: O | Yes  No  N/A  |
| S1GP7.36 | MCS8, Nss = 4 | 24.1.1 & 24.5 | S1GP7.33: O  CF2 & CF32: O | Yes  No  N/A  |
| S1GP7.37 | MCS9, Nss = 1 | 24.1.1 & 24.5 | CF1 & CF32 & (not S1GP1.2): O  CF2 & CF32: O | Yes  No  N/A  |
| S1GP7.38 | MCS9, Nss = 2 | 24.1.1 & 24.5 | CF1 & CF32 & S1GP7.37 & (not S1GP1.2): O  CF2 & CF32: O | Yes  No  N/A  |
| S1GP7.39 | MCS9, Nss = 3 | 24.1.1 & 24.5 | CF1 & CF32 & S1GP7.37: O  CF2 & CF32: O | Yes  No  N/A  |
| S1GP7.40 | MCS9, Nss = 4 | 24.1.1 & 24.5 | CF1 & CF32 & S1GP7.37 & (not S1GP1.2): O  CF2 & CF32: O | Yes  No  N/A  |
| S1GP7.41 | MCS10, Nss = 1 | 24.1.1 & 24.5 | CF32: M | Yes  No  N/A  |

*Add table B.4.28:*

**B.4.28 Relay features**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Item | Protocol capability | References | Status | Support |
| RL1 | Relay operation | 9.49 (Relay operation) | CF33: M | Yes  No  N/A  |
| RL2 | Relay Support | CF1: O | Yes  No  N/A  |
| RL3 | Relay element | RL1 OR RL2:M | Yes  No  N/A  |
| RL4 | Signaling of Relay element in Probe Request, (Re-)Association Request frames | CF33:M | Yes  No  N/A  |
| RL5 | Signaling of Relay element in S1G Beacon, Probe Response, Short Probe Response frames and (Re-)Association Response frames | (RL2):M | Yes  No  N/A  |
| RL6 | TXOP sharing | 9.49.3 (Procedures of TXOP sharing for relay operation) | (CF32 & RL1):O  (CF32 & RL2):O  (CF2 & CF32):O | Yes  No  N/A  |
| RL6.1 | Explicit Ack procedure | 9.49.3.1 (ExplicitAck procedure) | RL6:O.4 | Yes  No  N/A  |
| RL6.2 | Implicit Ack procedure | 9.49.3.2 (Implicit Ack procedure) | RL6:O.4 | Yes  No  N/A  |
| RL7 | Relay discovery procedure | 9.49.5 (Relay discovery procedure), 10.1.4.3.4a (Active scanning for relay discovery) | (CF32 & RL1):O  CF1: O  CF2: O | Yes  No  N/A  |