Project	**IEEE 802.16 Broadband Wireless Access Working Group <http://ieee802.org/16>**
Title	**802.1Q VLAN Packet CS Corrections**
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Re:	Letter Ballot 20. Doc IEEE 802.16g-D1
Abstract	Proposed changes to 802.16g to render the 802.1Q Packet CS and the GPCS compatible with the 802.1Q and 802.1D standards.
Purpose	To enable the correct support of the 802.1 ISS service as required by the PAR and 5 Criteria of 802.16g
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802.1Q VLAN Packet CS Corrections

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IEEE 802.1Q defines how VLANs (Virtual LANs) operated in a bridged 802 network. One feature of this standard is that bridges which map bridge ports onto a VLAN will tag frames with a VLAN tag so that the VLAN in which frames are carried may be identified by other bridges in the bridged LAN. Accordingly, within 802 bridged LANs supporting 802.1Q frames may or may not be tagged, depending on whether a link is a trunk link or not.

The 802.1Q VLAN Packet CS is named in a fashion to imply that all frames carried over this CS are VLAN tagged and the text of the base specification explicitly states this. There is no alternative non-tagged 802.1 CS.

In fact, to be compliant with 802.1Q and 802.1D as required by the PAR and 5 criteria, the 802.1Q CS should not be the entity that determines whether frames are tagged. That is for the VLAN aware bridge to decide, in compliance with 802.1Q.

The solution is simply to remove specificity as to whether 802.1Q VLAN packet CS actually carries VLAN tags by changing the name to the 802.1 Packet CS and changing some of the text to no longer require VLAN tagging, but instead to support it.

This is mostly an editorial change, except for removing the requirement that 802.1 CS frames must carry VLAN tags.

In the proposed changes, 802.1Q VLAN is replaced with 802.1 and in some cases, ISS is inserted to make it clear that the presented service is the 802.1D/AC ISS (Internal Sublayer Service), support for which is assumed by 802.1D and 802.1Q for all media types in 802.

Editing instructions for 802.16g are in bold italics. Editing instructions to be included in 802.16g are in the Framemaker IEEE template 'Editor Notes' format that shows up as red.

The proposed changes to 802.16g are as follows:

Insert new text into 802.16g, changing section 5.2.5:

Change 5.2.5 as follows.

5.2.5 IEEE Std ~~802.1Q-1998 virtual local area network (VLAN) specific part~~ 802.1 ISS specific part

This CS shall be employed when IEEE Std 802.1D ISS frames ~~802.1Q-1998 tagged VLAN frames~~ are to be carried over the IEEE Std 802.16 network.

Insert new text into 802.16g, changing section 5.2.5.1:

Change 5.2.5.1 as follows.

5.2.5.1 IEEE Std ~~802.1Q-1998 VLAN~~ 802.1 ISS CS PDU format

The format of the IEEE Std 802.1~~Q-1998 VLAN~~ CS PDU shall be as shown in Figure 14 (when header suppression is enabled at the connection, but not applied to the CS PDU) or Figure 15 (with header suppression).

Change rightmost cell of Figure 14 as follows.

IEEE 802.1~~Q VLAN tagged~~ ISS frame

Change caption of Figure 14 as follows.

Figure 14 - IEEE 802.1~~Q VLAN~~ CS PDU format without header suppression

Change rightmost cell of Figure 15 as follows.

Header-Suppressed IEEE 802.1~~Q VLAN tagged~~ ISS frame

Change caption of Figure 15 as follows.

Figure 15 - IEEE 802.1~~Q VLAN~~ CS PDU format with header suppression

Insert new text into 802.16g, changing section 5.2.5.2:

Change 5.2.5.2 as follows.

5.2.5.2 IEEE ~~Std 802.1Q-1998 VLAN~~ 802.1 ISS CS classifiers

The following parameters are relevant for IEEE ~~Std~~ 802.1~~Q-1998~~ CS classifiers:

2

LC classification parameters—zero or more of the LLC classification parameters (Destination MAC address, source MAC address, Ethertype/SAP).

IEEE Std 802.1D-1998 Parameters—zero or more of the IEEE classification parameters (IEEE Std 802.1D-1998 length, ~~Priority Range~~user_priority and access_priority, IEEE Std 802.1Q-1998 VLAN ID).

For IP over IEEE ~~Std~~ 802.1~~Q-1998 VLAN~~ISS, IP headers may be included in classification. In this case, the IP classification parameters (11.13.19.3.4.2—11.13.19.3.4.7) are allowed.

Insert new text into 802.16g, changing section 11.7.7.1:

11.7.7.1 Classification/PHS options and SDU encapsulation support

Change Column 'Value' of table of 11.7.7.1 as follows.

Bit #0: ATM
Bit #1: Packet, IPv4
Bit #2: Packet, IPv6
Bit #3: Packet, 802.3/Ethernet
Bit #4: Packet, 802.1/Q VLAN
Bit #5: Packet, IPv4 over 802.3/Ethernet
Bit #6: Packet, IPv6 over 802.3/Ethernet
Bit #7: Packet, IPv4 over 802.1 ISS~~Q VLAN~~
Bit #8: Packet, IPv6 over 802.1 ISS~~Q VLAN~~
Bit #9: Packet, 802.3/ethernet (with optional 802.1Q VLAN tags) and ROHC header compression
Bit #10: Packet, 802.3/ethernet (with optional 802.1Q VLAN tags) and ECRTP header compression
Bit #11: Packet, IP (v4 or v6) with ROHC header compression
Bit #12: Packet, IP (v4 or v6) with ECRTP header compression
Bits #13-31: *Reserved*; Shall be set to zero

Insert new text into 802.16g, changing section 12.1.1.6.1:

12.1.1.6.1 Packet CS Parameters for DSA-REQ - BS Initiated

Change list in 12.1.1.6.1 as follows.

— IEEE 802.1D User Priority (only for ~~VLAN~~ 802.1 Packet CSs, default = don't classify on this)
— IEEE 802.1Q VLAN_ID (only for ~~VLAN~~ 802.1 Packet CSs, default = don't classify on this)

Insert new text into 802.16g, changing section 12.1.1.6.3:

12.1.1.6.3 Packet CS Parameters for DSC-REQ - BS Initiated

Change list in 12.1.1.6.3 as follows.

— IEEE 802.1D User Priority (only for ~~VLAN~~ 802.1 Packet CSs, default = don't classify on this)
— IEEE 802.1Q VLAN_ID (only for ~~VLAN~~ 802.1 Packet CSs, default = don't classify on this)

Modify Text of 802.16g-D1 as follows:

5.2.8 Generic Packet Convergence Sublayer (GPCS)

In figure 17c. change "802.1Q/VLAN" to "802.1 ISS" and change "802.1Q/VLAN over 802.16" to "802.1 ISS over 802.16"

11.13.19.1 CS Specification

In table, column 'value', page 30, line 18, replace column contets with:

0: ~~No CS~~ GPCS (Generic Packet Convergence Sublayer)

1: Packet, IPv4

2: Packet, IPv6

3: Packet, 802.3/Ethernet

4: Packet, 802.1~~Q VLAN~~

5: Packet, IPv4 over 802.3/Ethernet

6: Packet, IPv6 over 802.3/Ethernet

7: Packet, IPv4 over 802.1~~Q VLAN~~

8: Packet, IPv6 over 802.1~~Q VLAN~~

9: ATM

10: Packet, 802.3/etherneta with ROHC header compression

11: Packet, 802.3/ethernetb with ECRTP header compression

12: Packet, IP2 with ROHC header compression

13: Packet, IP2 with ECRTP header compression

14~255: reserved

11.13.19.2 CS Parameter Encoding Rules

In table, column 'CS', Row 103, page 30, line 59, replace cell contents "Packet, 802.1Q VLAN*" with "*Packet, 802.1*"*

In table, column 'CS', Row 106, page 31, line 2, replace cell contents "Packet, IPv4 over 802.1Q VLAN*" with "*Packet, IPv4 over 802.1*"*

In table, column 'CS', Row 107, page 31, line 3, replace cell contents "Packet, IPv6 over 802.1Q VLAN*" with "*Packet, IPv6 over 802.1*"*