IEEE Std 802.20b™-2010
(Amendment to IEEE Std 802.1Q™-2005)

IEEE Standard for Local and metropolitan area networks—Virtual Bridged Local Area Networks Amendment 15: Bridging of IEEE 802.20

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Abstract: This amendment specifies the mechanism for the support of bridging of IEEE 802.20 networks.

Keywords: 802.20 bridging

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Introduction

This introduction is not part of IEEE Std 802.20b-2010, IEEE Standard for Local and metropolitan area networks—Virtual Bridged Local Area Networks—Amendment 15: Bridging of IEEE 802.20.

This document amends IEEE Std 802.1Q-2005 to support bridging of the IEEE 802.20 medium access control.

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Participants

At the time this amendment was submitted to the IEEE-SA Standards Board for approval, the Working Group had the following membership:

Mark Klerer, *Chair*
Radhakrishna Canchi, *Vice-Chair*

Nancy Bravin	Francis O'Brien	Ajay Rajkumar
Kazuhito Ishida	James Ragsdale	Jerry Upton

The following members of the individual balloting committee voted on this amendment. Balloters may have voted for approval, disapproval, or abstention.

Thomas Alexander	Atsushi Ito	Venkatesha Prasad
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When the IEEE-SA Standards Board approved this amendment on 9 November 2010, it had the following membership:

1.Member Emeritus

Contents

IEEE Standard for Local and metropolitan area networks — Virtual Bridged Local Area Networks Amendment 15: Bridging of IEEE 802.20

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Editorial Note

The editing instructions contained in this amendment define how to merge the material contained therein into the existing base standard and its amendments to form the comprehensive standard. The editing instruction are shown in ***bold italics***. Three editing instructions are used: ***change, delete***, and ***insert. Change*** is used to make a change to existing material. The editing instruction specifies the location of the change and describes what is being changed. Changes to existing text may be clarified using ~~strikeout~~ markings to indicate removal of old material, and underscore markings to indicate addition of new material). ***Delete*** removes existing material. ***Insert*** adds new material without changing the existing material. Insertions may require renumbering. If so, renumbering instructions are given in the editing instruction. Editing instructions, change markings, and this NOTE will not be carried over into future editions because the changes will be incorporated into the base standard.

Changes are applied to the base text of IEEE Std 802.1Q-2005, as modified by those amendments that have been approved, but not incorporated into the base text of the standard, at the time that this amendment was approved, namely (in chronological order) IEEE Std 802.1ad™, IEEE Std 802.1ak™, IEEE Std 802.1ag™, IEEE Std 802.1ah™, IEEE Std 802.1Q-2005/Cor 1, IEEE Std 802.1ap™, IEEE Std 802.1Qaw™, IEEE Std 802.1Qay™, IEEE Std 802.1aj™, IEEE Std 802.1Qav™, and IEEE Std 802.1Qat™.

2. Normative references

Insert the following new reference into Clause 2:

- IEEE Std 802.20™, IEEE Std for Local and Metropolitan Area Networks—Part 20: Air Interface for Mobile Broadband Wireless Access Systems Supporting Vehicular Mobility—Physical and Media Access Control Layer Specification.[1][1], [2][2]

1. IEEE publications are available from the Institute of Electrical and Electronics Engineers, Inc., 445 Hoes Lane, Piscataway, NJ 08854, USA (http://standards.ieee.org/).

6. Support of the MAC Service

6.7 Support of the Internal Sublayer Service by specific MAC procedures

Insert the following as new subclause 6.7.2:

6.7.2 Support by IEEE Std 802.20 (MBWA)

6.7.2.1 Support by Wideband mode of IEEE Std 802.20 (MBWA)

The Mobile Broadband Wireless Access Method for the IEEE 802.20 Wideband Mode is specified in 5.4 and Clause 6 through Clause 17 of IEEE Std 802.20. Clause 8 of the standard specifies the Wideband Mode Lower MAC Layer Frame structure and protocol procedures. Clause 7 specifies the Radio Link Sublayer protocol and Clause 6 defines the Services Sublayer of the Wideband Mode. Clause 11 defines the Connection Control Plane, which controls the state of the air-link by managing the states of individual Lower MAC Layer protocols, and by providing individual Lower MAC Layer protocols with operating parameters.

The Basic Packet Consolidation Protocol (8.2 of IEEE Std 802.20) provides packet consolidation on the transmit side and provides packet de-multiplexing on the receive side. It provides an interface for the Radio Link Sublayer to transport user information from the Services Sublayer.

For packets to be transmitted over the air interface (wireless medium) either from the Access Node (AN) or Access Terminal (AT), the Lower MAC Sublayer shall accept Radio Link Sublayer data and control packets and shall generate Lower MAC Sublayer control packets of its own. For packets leaving the air interface (wireless medium) for the AN or AT, the Lower MAC Sublayer shall de-multiplex the received packets and shall deliver the payload to the Radio Link Sublayer. The Radio Link Sublayer shall deliver the payload to the Services Sublayer which includes support for different IEEE802.3 frame based protocols.

6.7.2.1.1 Support for Internal Sublayer Service under Wideband Mode of IEEE Std 802.20

The **destination_address, source_address, mac_service_data_unit**, and **user_priority** parameters of the M_UNITDATA primitive are encoded as described in 6.6.2.

The value of **operPointToPointMAC** (6.6.3) shall be TRUE.

The value of MAC_Enabled shall be determined by the procedure described in 6.6.2.

After the IEEE 802.20 AT has registered with the AN, authenticated, and performed capabilities negotiation, and after the stream is established to carry IEEE 802® frames, then the value of the **MAC_Operational** parameter shall be determined by the procedure described in 6.6.2. Beforehand, the value of **MAC_Operational** shall be FALSE.

Frame size limits are determined by IEEE Std 802.3™.

6.7.2.2 Support by 625k-MC mode of IEEE Std 802.20 (MBWA)

The Mobile Broadband Wireless Access Method for 625k-MC mode is specified in 5.5, Clause 18 through Clause 31, and Annex A of IEEE Std 802.20. Clause 19 of the standard specifies 625k-MC Mode MAC Frame structure. Clause 23 specifies the MAC Protocol Sublayer function to implement the 625k-MC mode

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MAC service. Clause 25 specifies the L3 protocol and Clause 26 defines all the primitives used in 625k-MC Mode.

The L3 protocol layer is made up of components with distinct roles in supporting a connection across the air interface. The L3 Connection Management (CM) module provides an application level interface to the higher layer. The L3 protocol creates logical connections to transport the higher layer L4 data packets. The L3 Registration Management (RM) module takes the L4 data packets provided by the higher layer (through L3 CM) and converts them into a form that can be sent over the air interface. On the receiving side, L3 RM converts packets received from the air interface back into network packets before giving them to L3 CM.

Clause 26 defines the higher layer to L3 CM Interface Primitives for the service access point that shall be provided by L3 CM for the use of the higher layer. Clause 26 defines L3 CM to L4 Interface Primitives for the service access point provided by the higher layer for the use of L3 CM.

For packets entering air interface (wireless medium) either from BS network or end-user device (EUD), L3 shall accept L4 data and L4 control packets and shall generate L3 control packets of its own, and shall then send them to L2 RLC. For packets leaving air interface (wireless medium) for BS network or EUD, L3 shall accept byte streams from L2 RLC; shall determine whether the packet is a data packet, an L3 control packet, or an L4 control packet; and shall route the L4 control and data packets to the higher layer.

6.7.2.2.1 Support for Internal Sublayer Service under 625k-MC Mode of IEEE Std 802.20

The **destination_address, source_address, mac_service_data_unit**, and **user_priority** parameters of the M_UNITDATA primitive are encoded as described in 6.6.2.1 and presented as an ISS supported IEEE802.3 MAC to the higher layer. The higher-layer triggers the L3 protocol of 625k-MC. The L3 CM module state machine shall respond to requests from the higher layer for virtual connections across the air interface, and requests registrations from the L3 RM to allow the virtual connections to use physical channels (streams).

The value of **operPointToPointMAC** (6.6.3) shall be TRUE.

The value of MAC_Enabled shall be determined by the procedure described in 6.6.2.

Initially, the value of **MAC_Operational** shall be FALSE. After the UT has registered with the BS, authenticated, and performed capabilities negotiation, and after the stream is established to carry IEEE 802 frames, then the value of the **MAC_Operational** parameter shall be determined by the procedure described in 6.6.2. Frame size limits are determined by IEEE Std 802.3™.

Annex A

(normative)

PICS proforma[1][1]

Change the first row of Table A.6 (Media Access Control Methods), by adding lines for IEEE 802.20 as follows:

A.6 Media Access Control methods

Item	Feature	Status	Reference	Support
	Which Media Access Control methods are implemented in accordance with the relevant MAC standards?			..... Yes[ ]
....	....	.....	.....	No[ ]
MAC-802.20-WB	Wideband Mode, IEEE Std 802.20	O.1	6.5.7.1	Yes[ ]
MAC-802.20-625	625k-MC Mode, IEEE Std 802.20	O.1	6.5.7.2	No[ ]

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