



**IEEE Standard 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**

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**IEEE Computer Society**

Sponsored by the  
LAN/MAN Standards Committee

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IEEE  
3 Park Avenue  
New York, NY 10016-5997, USA  
29 August 2008

**IEEE Std 802.20™-2008**

802.20™



**IEEE Standard for**  
**Local and metropolitan area networks**

**Part 20: Air Interface for Mobile  
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**IEEE Computer Society**

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- TIA-1121.002—MAC Layer for Ultra Mobile Broadband (UMB) Air Interface Specification
- TIA-1121.003—Radio Link Layer for Ultra Mobile Broadband (UMB) Air Interface Specification
- TIA-1121.004—Application Layer for Ultra Mobile Broadband (UMB) Air Interface Specification
- TIA-1121.005—Security Functions for Ultra Mobile Broadband (UMB) Air Interface Specification
- TIA-1121.006—Connection Control Plane for Ultra Mobile Broadband (UMB) Air Interface Specification
- TIA-1121.007—Session Control Plane for Ultra Mobile Broadband (UMB) Air Interface Specification
- TIA-1121.008—Route Control Plane for Ultra Mobile Broadband (UMB) Air Interface Specification
- TIA-1121.009—Broadcast-Multicast Upper Layers for Ultra Mobile Broadband (UMB) Air Interface Specification

**Abstract:** The technical requirements of this standard form a compatibility standard for mobile broadband wireless access systems. The standard ensures that a compliant access terminal (AT) or user terminal (UT) can obtain service through any access node (AN) or base station (BS) conforming to properly selected modes of this standard, consistent with equipment and operator requirements, thus providing a framework for the rapid development of cost-effective, multivendor mobile broadband wireless access systems. This compatibility standard is targeted for use in a wide variety of licensed frequency bands and regulatory environments.

This standard provides for future standardized extension capabilities. The architecture defined by this standard permits such expansion without the loss of backward compatibility.

**Keywords:** access node, access terminal, base station, broadband, LAN, local area networks, MAN, metropolitan area networks, user terminal, vehicular mobility, wireless access

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PDF: ISBN 973-07381-5766-5 STD95805

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## Introduction

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# Contents

|    |   |     |
|----|---|-----|
| 1. | Scope.....  | 1   |
| 2. | Normative references.....   | 2   |
| 3. | Definitions.....  | 4   |
| 4. | Abbreviations and acronyms.....   | 19  |
| 5. | General introduction.....   | 21  |
|    | 5.1 General.....  | 21  |
|    | 5.2 Modes of the standard.....  | 21  |
|    | 5.3 Requirements language.....  | 21  |
|    | 5.4 Wideband mode overview.....   | 21  |
|    | 5.5 System overview of 625k-MC (625kiloHertz-spaced MultiCarrier) Mode..... | 38  |
| 6. | Services Sublayer.....  | 41  |
|    | 6.1 Introduction.....   | 41  |
|    | 6.2 Basic Signaling Protocol.....   | 41  |
|    | 6.3 Basic Inter-Route Tunneling Protocol.....                               | 45  |
|    | 6.4 Basic Robust Header Compression Support Protocol.....                   | 53  |
|    | 6.5 Basic EAP Support Protocol.....   | 58  |
| 7. | Radio Link Sublayer.....  | 62  |
|    | 7.1 Introduction.....   | 62  |
|    | 7.2 Basic QOS Management Protocol.....                                      | 63  |
|    | 7.3 Basic Radio Link Protocol.....  | 94  |
|    | 7.4 Basic Stream Protocol.....  | 131 |
|    | 7.5 Basic Route Protocol.....   | 135 |
| 8. | Lower MAC Sublayer.....   | 146 |
|    | 8.1 General.....  | 146 |
|    | 8.2 Basic Packet Consolidation Protocol.....                                | 159 |
|    | 8.3 Basic Superframe Preamble Mac Protocol.....                             | 166 |
|    | 8.4 Basic Access Channel MAC Protocol.....                                  | 176 |
|    | 8.5 Basic Forward Link Control Segment MAC Protocol.....                    | 189 |
|    | 8.6 Basic Forward Traffic Channel MAC Protocol.....                         | 218 |
|    | 8.7 Basic Reverse Control Channel MAC Protocol.....                         | 291 |
|    | 8.8 Basic Reverse Traffic Channel MAC Protocol.....                         | 346 |
| 9. | Physical Layer.....   | 389 |
|    | 9.1 Basic Physical Layer Protocol.....                                      | 389 |
|    | 9.2 General.....  | 390 |
|    | 9.3 Requirements for access terminal operation.....                         | 496 |
|    | 9.4 Access network requirements.....  | 521 |
|    | 9.5 Broadcast Multicast Services (BCMCS).....                               | 569 |

|     |  |     |
|-----|--|-----|
| 10. | Security functions .....                                   | 586 |
|     | 10.1 Introduction .....                                    | 586 |
|     | 10.2 AES Ciphering Protocol.....                           | 586 |
|     | 10.3 Basic Message Integrity Protocol.....                 | 595 |
|     | 10.4 Basic Key Exchange Protocol .....                     | 603 |
| 11. | Connection Control Sublayer.....                           | 614 |
|     | 11.1 Introduction .....                                    | 614 |
|     | 11.2 Basic Air Link Management Protocol.....               | 615 |
|     | 11.3 Basic Initialization State Protocol .....             | 640 |
|     | 11.4 Basic Idle State Protocol.....                        | 644 |
|     | 11.5 Basic Connected State Protocol.....                   | 659 |
|     | 11.6 Overhead Messages Protocol.....                       | 681 |
|     | 11.7 Basic Active Set Management Protocol .....            | 714 |
| 12. | Session Control Plane .....                                | 754 |
|     | 12.1 Introduction .....                                    | 754 |
|     | 12.2 Basic Session Control Protocol.....                   | 755 |
| 13. | Route Control Plane.....                                   | 798 |
|     | 13.1 Introduction .....                                    | 798 |
|     | 13.2 Basic Route Control Protocol.....                     | 798 |
| 14. | Broadcast support .....                                    | 825 |
|     | 14.1 Introduction .....                                    | 825 |
|     | 14.2 Basic Broadcast Protocol Suite .....                  | 825 |
| 15. | Common procedures and data structures .....                | 877 |
|     | 15.1 Common procedures .....                               | 877 |
|     | 15.2 Common data structures.....                           | 880 |
| 16. | Assigned names and numbers.....                            | 889 |
|     | 16.1 Protocol types and subtypes .....                     | 889 |
|     | 16.2 ANID, SectorID, and UATI provisioning.....            | 892 |
| 17. | MAC and PHY MIB .....                                      | 894 |
|     | 17.1 Overview .....  | 894 |
|     | 17.2 MIB structure .....                                   | 894 |
|     | 17.3 Definition .....                                      | 894 |
| 18. | 625k-MC spectral layout terminology and requirements ..... | 935 |
| 19. | 625k-MC slot and frame structure .....                     | 936 |
|     | 19.1 Overview .....  | 936 |
|     | 19.2 RF channel and frame structure.....                   | 936 |

|      |   |     |
|------|---|-----|
| 19.3 | Burst formats .....   | 936 |
| 20.  | 625k-MC modulation and channel coding.....                                | 937 |
| 20.1 | 625k-MC modulation and channel coding overview .....                      | 937 |
| 20.2 | Standard modulation and coding.....                                       | 937 |
| 20.3 | Broadcast channel modulation and coding .....                             | 944 |
| 21.  | 625k-MC user terminal radio transmission and reception.....               | 945 |
| 21.1 | 625k-MC user terminal nominal output power for modulation formats .....   | 945 |
| 21.2 | 625k-MC UT modulation accuracy for modulation formats.....                | 945 |
| 21.3 | 625k-MC UT reference sensitivity level.....                               | 945 |
| 21.4 | 625k-MC UT receiver SINR estimation accuracy .....                        | 946 |
| 21.5 | 625k-MC UT receiver adjacent channel selectivity .....                    | 946 |
| 22.  | 625k-MC base station radio transmission and reception .....               | 947 |
| 22.1 | 625k-MC base station transmitter modulation accuracy .....                | 947 |
| 22.2 | 625k-MC base station receiver reference sensitivity level.....            | 947 |
| 22.3 | 625k-MC BS receiver SINR estimation accuracy.....                         | 947 |
| 23.  | 625k-MC L2 MAC Protocol Sublayer Specification .....                      | 948 |
| 23.1 | Logical channels.....   | 948 |
| 23.2 | 625k-MC minimized RMU header.....   | 950 |
| 24.  | 625k-MC L2 RLC Protocol Sublayer Specification.....                       | 953 |
| 24.1 | 625k-MC AM RMU .....  | 953 |
| 24.2 | 625k-MC transmit procedure .....  | 953 |
| 24.3 | Receive procedure .....   | 955 |
| 25.  | 625k-MC L3 Protocol Specification.....                                    | 957 |
| 26.  | 625k-MC Protocol layer primitives (informative).....                      | 958 |
| 26.1 | Interface list .....  | 958 |
| 26.2 | Individual interfaces .....   | 958 |
| 27.  | 625k-MC QoS Enhancements .....  | 965 |
| 27.1 | Classes of services.....  | 965 |
| 27.2 | Session QoS information exchange procedures .....                         | 965 |
| 27.3 | QoS priority .....  | 966 |
| 28.  | 625k-MC Broadcast and Multicast Service (BCMCS) Support Enhancement ..... | 968 |
| 28.1 | Overview .....  | 968 |
| 28.2 | Broadcast service .....   | 968 |
| 28.3 | Multicast service .....   | 969 |
| 29.  | 625k-MC Privacy and Authentication Enhancement .....                      | 975 |

|         |  |      |
|---------|--|------|
| 29.1    | Overview .....   | 975  |
| 29.2    | 625k-MC Handshake and BS Authentication Protocol, i-HAP .....              | 975  |
| 29.3    | 625k-MC Terminal Authentication Protocol, i-TAP.....                       | 976  |
| 29.4    | 625k-MC Secure Communications Protocol, i-SEC .....                        | 976  |
| 30.     | 625k-MC Sleep Mode Control Protocol.....                                   | 981  |
| 31.     | 625k-MC OA & M Radio Network Quality Monitor and Control Enhancement ..... | 982  |
| 31.1    | 625k-MC Mode MIB .....   | 982  |
| Annex A | (informative) 625K-MC Glossary of Technical Terms.....                     | 1038 |
| Annex B | (informative) Bibliography.....  | 1039 |



IEEE Standard 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

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## 1. Scope

This standard specifies the physical and medium access control layers of an air interface for interoperable mobile broadband wireless access systems, operating in licensed bands below 3.5 GHz. The system is optimized for IP-data transport, with peak data rates per user in excess of 1 Mbps.

## 2. Normative references

The following referenced documents are indispensable for the application of this document (i.e., they must be understood and used, so each referenced document is cited in text and its relationship to this document is explained). For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments or corrigenda) applies.

3GPP2 C.R1001-F v1.0, Administration of Parameter Value Assignments for cdma2000TM Spread Spectrum Standards.<sup>1</sup>

3GPP2 C.S0001, Introduction to cdma2000 Standards for Spread Spectrum Systems.

3GPP2 C.S0010-C v2.0, Recommended Minimum Performance Standards for cdma2000 Spread Spectrum Base Stations, March 2006.

3GPP2 C.S0011-C, Recommended Minimum Performance Standards for cdma2000 Spread Spectrum Mobile Stations, March 2006.

3GPP2 C.S0024, cdma2000 High Rate Packet Data Air Interface Specification.

3GPP2 C.S0057-B, Band Class Specification for cdma2000 Spread Spectrum Systems.

3GPP2 S.S0055A v2.0, Enhanced Cryptographic Algorithms.

3GPP2 S.S0078, Common Security Algorithms.

ATIS-0700004.2005, High Capacity-Spatial Division Multiple Access (HC-SDMA) Radio Interface Standard, September 2005.<sup>2</sup>

IEEE Std 802.1Q<sup>TM</sup>, IEEE Standard for Local and Metropolitan Area Networks: 2 Virtual Bridged Local Area Networks.<sup>3, 4</sup>

IEEE Std 802.2<sup>TM</sup>, IEEE Standard for Local Area Networks—Logical link control.

IEEE Std 802.3<sup>TM</sup>, IEEE Standard for Information technology—Telecommunications and information exchange between systems—Local and metropolitan area networks—Specific requirements—Part 3: Carrier sense multiple access with collision detection (CSMA/CD) access method and physical layer specifications.

IETF RFC 791, Internet Protocol.<sup>5</sup>

IETF RFC 2210, The Use of RSVP with IETF Integrated Services.

IETF RFC 2216, Network Element Service Specification Template, S. Shenker, J. Wroclawski, September 1987.

IETF RFC 2460, Internet Protocol, Version 6 (IPv6) Specification.

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