

Project	<b>IEEE 802.16 Broadband Wireless Access Working Group</b>	
Title	<b>Report of Comments on 802.16s0-99/5, System Requirements Draft #5</b>	
Date Submitted	<b>1999-11-04</b>	
Source	Brian Petry 3Com 12230 World Trade Dr. San Diego, CA 92128	Voice: 858-674-8533 E-mail: brian_petry@3com.com
Re:	Comments received from the call-for-comments, 802.16sc-99/37	
Abstract	This report contains a capture of comments received on draft #5 of the 802.16 System Requirements Task Group's document.	
Purpose	This report should be used to inform the 802.16 System Requirements Task Group of comments received, and serve as an aid during comment resolution at 802.16 session #4.	
Notice	This document has been prepared to assist the IEEE 802.16. It is offered as a basis for discussion and is not binding on the contributing individual(s) or organization(s). The material in this document is subject to change in form and content after further study. The contributor(s) reserve(s) the right to add, amend or withdraw material contained herein.	
Release	The contributor acknowledges and accepts that this contribution may be made public by 802.16.	
IEEE Patent Policy	The contributor is familiar with the IEEE Patent Policy, which is set forth in the IEEE-SA Standards Board Bylaws < <a href="http://standards.ieee.org/guides/bylaws">http://standards.ieee.org/guides/bylaws</a> > and includes the statement:  "IEEE standards may include the known use of patent(s), including patent applications, if there is technical justification in the opinion of the standards-developing committee and provided the IEEE receives assurance from the patent holder that it will license applicants under reasonable terms and conditions for the purpose of implementing the standard."	

# Comments by page #/line#

**Item Number:** 301

**Page Number:** 0

**Line Number:** 0

**Description of Edit**

Global replacement of "802.16" with "802.16.1".

**Commentor Name:** Marks

Roger

**Reason for Edit:**

For consistency with the new PAR number (802.16.1) to refer to the Air Interface standard.

**Date Received:** 11/3/99

**Date Resolved:**

**Comment Type:** Editorial

**Resolution Status:** unresolved

**Notes:**

**Item Number:** 377

**Page Number:** 0

**Line Number:** 0

**Description of Edit**

Global replacement of "System Requirements" with "Functional Requirements".

**Commentor Name:** Marks

Roger

**Reason for Edit:**

For consistency with proposed change of title to "802.16.1 Functional Requirements, Rev. 0".

**Date Received:** 11/3/99

**Date Resolved:**

**Comment Type:** Editorial

**Resolution Status:** unresolved

**Notes:**

**Item Number:** 376

**Page Number:** 0

**Line Number:** 2

**Description of Edit**

Change title from:

"Preliminary Draft Working Document for 802.16 Broadband Wireless Access System Requirements"

to:

"802.16.1 Functional Requirements, Rev. 0"

**Commentor Name:** Marks

Roger

**Reason for Edit:**

- (1) Drop language indicative of a preliminary status.
- (2) Use "Rev. 0" to allow easy migration path.
- (3) Use the new PAR number (802.16.1) to refer to the Air Interface standard.
- (4) Replace "System Requirements" with "Functional Requirements" because:
  - The document specifies the functions that the network provides rather than requirements concerning the system implementation.
  - Consistent with "IEEE 802 Functional Requirements" <<http://grouper.ieee.org/groups/802/11/fureq6-8.html>>.
  - Consistent with "802.14 Cable-TV Functional Requirements and Evaluation Criteria" <<http://www.walkingdog.com/catv/94-002.pdf>>
  - "Functional Requirements" was used in several contributions in support of the development of this document, including:
    - \*802.16sc-99/7  
Functional Requirements for the 802.16 Standard
    - \*802.16sc-99/5  
Functional Requirements for Broadband Wireless Access Networks
    - \*802.16sc-99/2  
802.6 Functional Requirements

**Date Received:** 11/3/99

**Date Resolved:**

**Comment Type:** Editorial

**Resolution Status:** unresolved

**Notes:**

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**Item Number:** 336

**Commentor Name:** Yee  
Jung

**Page Number:** 1  
**Line Number:** 39

**Description of Edit**

Delete "a" after "...item because"

**Reason for Edit:**

Grammar

**Date Received:** 11/3/99      **Date Resolved:**  
**Comment Type:** Editorial      **Resolution Status:** unresolved  
**Notes:**

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**Item Number:** 323

**Commentor Name:** Scott  
Marin

**Page Number:** 2  
**Line Number:** 23

**Description of Edit**

Replace the sentence "The following diagram illustrates the relationship of 802.16 protocols to other 802 standards and to the OSI model" with "The 802.16 protocols relate to other 802 standards and to the OSI reference model as shown in Figure 1."

**Reason for Edit:**

All figures and tables should have titles. All figures and titles should be called out in the text.

**Date Received:** 11/3/99      **Date Resolved:**  
**Comment Type:** Editorial      **Resolution Status:** unresolved  
**Notes:**

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**Item Number:** 324

**Commentor Name:** Scott  
Marin

**Page Number:** 2  
**Line Number:** 25

**Description of Edit**

Move the sentence "(The numbers in the figure refer to IEEE standard numbers.)" to the end of the Figure 1 title. Replace "(The numbers in the figure refer to IEEE standard numbers.)" with "(The numbers refer to IEEE standard numbers.)"

**Reason for Edit:**

All figures and tables should have titles. All figures and titles should be called out in the text. The parenthetic note should be with the figure.

**Date Received:** 11/3/99      **Date Resolved:**  
**Comment Type:** Editorial      **Resolution Status:** unresolved  
**Notes:**

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**Item Number:** 322

**Commentor Name:** Scott  
Marin

**Page Number:** 2  
**Line Number:** 28

**Description of Edit**

add figure title. "Figure 1, Relationship between 802.16 and other Protocol Standards"

**Reason for Edit:**

All figures and tables should have titles. All figures and titles should be called out in the text.

**Date Received:** 11/3/99      **Date Resolved:**  
**Comment Type:** Editorial      **Resolution Status:** unresolved  
**Notes:**

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**Item Number:** 309

**Commentor Name:** Goldhammer  
Marianna

**Page Number:** 4  
**Line Number:** 1

**Description of Edit**

Change "and multi-tenant dwellings such as high rise buildings" to ", SoHo (Small Office Home Office), Telecommuters and multi-tenant dwellings. From the deployment perspective, most of these markets are situated in residential areas."

**Reason for Edit:**

To ensure that the standard can cover the large market segment situated between enterprise market and the residential one.

**Date Received:** 11/3/99      **Date Resolved:**  
**Comment Type:** Technical      **Resolution Status:** unresolved  
**Notes:**

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**Item Number:** 337

**Commentor Name:** Yee  
Jung

**Page Number:** 4

**Line Number:** 19

**Description of Edit**

Replace second "Figure 1-1" with "Figure 1-2"

**Reason for Edit:**

Typo

**Date Received:** 11/3/99

**Date Resolved:**

**Comment Type:** Editorial

**Resolution Status:** unresolved

**Notes:**

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**Item Number:** 352

**Commentor Name:** Simon  
Francois

**Page Number:** 4

**Line Number:** 19

**Description of Edit**

Replace the second "Figure 1-1" instance with "Figure 1-2"

**Reason for Edit:**

Provide the correct market reference

**Date Received:** 11/3/99

**Date Resolved:**

**Comment Type:** Editorial

**Resolution Status:** unresolved

**Notes:**

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**Item Number:** 302

**Commentor Name:** Marks  
Roger

**Page Number:** 4

**Line Number:** 20

**Description of Edit**

In Figure 1-1, delete "LMDS".

**Reason for Edit:**

The term "LMDS" is used nowhere else in the document (except in the references). It is not defined, it does not add value, and it detracts from the global nature of the result since it is often associated with one particular nation.

**Date Received:** 11/3/99

**Date Resolved:**

**Comment Type:** Editorial

**Resolution Status:** unresolved

**Notes:**

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**Item Number:** 310

**Commentor Name:** Goldhammer  
Marianna

**Page Number:** 5

**Line Number:** 0

**Description of Edit**

Delete "Line of sight constrained" from the High-Cap Access trapeze and "Must Overcome LOS" from Mass Market Access trapeze.

**Reason for Edit:**

Technical inconsistency: there is no relation between radio propagation constraints and more or less than 2Mb/s capacity.

**Date Received:** 11/3/99

**Date Resolved:**

**Comment Type:** Technical

**Resolution Status:** unresolved

**Notes:**

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**Item Number:** 338

**Commentor Name:** Yee  
Jung

**Page Number:** 5

**Line Number:** 0

**Description of Edit**

Figure 1-2, replace "802.11 WLAN" with "WLAN"

**Reason for Edit:**

Bluetooth and 802.11 may both meet the requirements. Leave the description more general

**Date Received:** 11/3/99

**Date Resolved:**

**Comment Type:** Technical

**Resolution Status:** unresolved

**Notes:**

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**Item Number:** 325

**Commentor Name:** Scott  
Marin

**Page Number:** 5

**Line Number:** 1

**Description of Edit**

In the Wireless Solution Column of Figure 1-2, Replace the "Fixed Wireless Access" with "802.16 P-MP Radio".

**Reason for Edit:**

Figure 1-2 in document IEEE 802.16s0-99/5 implies that 802.16 P-MP radio is difference than fixed wireless access, which it is not. The figure also implies that 802.16 doesn't apply for data rates below 2 Mbps or for the SOHO market, which is also not true. The figure was correct in document IEEE 802.16s0-99/4 which labeled both the Mass Market Access and the High-cap Access as being within the scope of 802.16.

**Date Received:** 11/3/99

**Date Resolved:**

**Comment Type:** Technical

**Resolution Status:** unresolved

**Notes:**

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**Item Number:** 303

**Commentor Name:** Fishel  
George

**Page Number:** 5

**Line Number:** 1

**Description of Edit**

Replace "Fixed Wireless Access" in the Wireless Solutions column of figure 1 with "802.16P-MP Radio".

**Reason for Edit:**

It was always intended that one of the areas that would be serviced by our standard would be the residential market.

**Date Received:** 11/3/99

**Date Resolved:**

**Comment Type:** Editorial

**Resolution Status:** unresolved

**Notes:**

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**Item Number:** 353

**Commentor Name:** Simon  
Francois

**Page Number:** 5

**Line Number:** 22

**Description of Edit**

Propose to replace "rain fall" with "atmospheric conditions"

**Reason for Edit:**

Atmospheric conditions, other than rain, such as snow, hail, fog, and even clouds may also alter the operating range of 802.16 radios.

**Date Received:** 11/3/99

**Date Resolved:**

**Comment Type:** Technical

**Resolution Status:** unresolved

**Notes:**

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**Item Number:** 326

**Commentor Name:** Scott  
Marin

**Page Number:** 7

**Line Number:** 6

**Description of Edit**

Delete Sentence: "Typical bands allocated for 802.16 use are very wide, allowing for the bands to be channelized."

**Reason for Edit:**

The sentence has several problems. Bands are not "allocated" for 802.16. Only the ITU "allocates" bands for use by defined radio services such as the fixed service. The phrase "very wide" is vague. The logical correctness of the argument that because bands are wide they can be channelized is incorrect. The channelization of bands has nothing to do with how wide the band is. Rather than trying to repair all of these issues, I recommend simply deleting the sentence.

**Date Received:** 11/3/99

**Date Resolved:**

**Comment Type:** Technical

**Resolution Status:** unresolved

**Notes:**

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**Item Number:** 304

**Commentor Name:** Fishel  
George

**Page Number:** 7

**Line Number:** 6

**Description of Edit**

Remove sentence that reads "Typical bands allocated for 802.16 use are very wide, allowing for the bands to be channilized."

**Reason for Edit:**

The bands are not allocated for 802.16 use they are allocated for LMDS use.

**Date Received:** 11/3/99

**Date Resolved:**

**Comment Type:** Editorial

**Resolution Status:** unresolved

**Notes:**

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**Item Number:** 327

**Commentor Name:** Scott  
Marin

**Page Number:** 8

**Line Number:** 1

**Description of Edit**

In Figure 2-3, replace "STS" with "subscriber station" and replace "BTS" with "base station"

**Reason for Edit:**

To be consistent with text.

**Date Received:** 11/3/99

**Date Resolved:**

**Comment Type:** Editorial

**Resolution Status:** unresolved

**Notes:**

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**Item Number:** 328

**Commentor Name:** Scott  
Marin

**Page Number:** 8

**Line Number:** 21

**Description of Edit**

Delete the sentence "The resulting topology is very similar to a Hybrid Fiber Coax (HFC) cable TV network [69][69][3]."

**Reason for Edit:**

The sentence has several editorial and technical problems. Editorially, [69] appears twice, and the sentence should end with a period instead of a comma. Grammatically, the word very in the phrase "is very similar to" is odd construction and vague. If the phrase "very similar to" implies "almost the same as" then I take exception to the wording because HFC networks are many differences and only a few similarities to 802.16 networks. The text needs to either explain the differences and similarities or say nothing. In the interest of time and because there is not a requirement in the line 21 sentence, I recommend simply deleting the sentence.

**Date Received:** 11/3/99

**Date Resolved:**

**Comment Type:** Technical

**Resolution Status:** unresolved

**Notes:**

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**Item Number:** 305

**Commentor Name:** Fishel  
George

**Page Number:** 8

**Line Number:** 21

**Description of Edit**

Delete the sentence "The resultant topology is very similar the Hybrid fiber Coax (HFC) cable TV network."

**Reason for Edit:**

The topology is in no way the same as an HFC network. Some of the access protocol may be similar but that is the only reason they are alike.

**Date Received:** 11/3/99

**Date Resolved:**

**Comment Type:** Editorial

**Resolution Status:** unresolved

**Notes:**

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**Item Number:** 354

**Commentor Name:** Simon  
Francois

**Page Number:** 9

**Line Number:** 4

**Description of Edit**

Replace "servicse" with "services".

**Reason for Edit:**

Misspelled word

**Date Received:** 11/3/99

**Date Resolved:**

**Comment Type:** Editorial

**Resolution Status:** unresolved

**Notes:**

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**Item Number:** 341

**Commentor Name:** Guillemette  
Phil

**Page Number:** 9

**Line Number:** 19

**Description of Edit**

Delete "This form ... the MAC protocol layer."

**Reason for Edit:**

This sentence seems to imply an implementation and not a requirement.

**Date Received:** 11/3/99

**Date Resolved:**

**Comment Type:** Technical

**Resolution Status:** unresolved

**Notes:**

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**Item Number:** 311

**Commentor Name:** Goldhammer  
Marianna

**Page Number:** 9

**Line Number:** 19

**Description of Edit**

Delete the sentence starting with "This form of digital transport"

**Reason for Edit:**

1. The MAC protocol is not time slotted, but packet based. The video digital broadcast is not a "time-critical" service (par. 6) and shall be passed in a regular broadcast MAC packet.  
2. The only interface point, as defined for 802 primitives, is with the MAC layer.

**Date Received:** 11/3/99

**Date Resolved:**

**Comment Type:** Technical

**Resolution Status:** unresolved

**Notes:**

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**Item Number:** 342

**Commentor Name:** Guillemette  
Phil

**Page Number:** 10

**Line Number:** 31

**Description of Edit**

Delete paragraph.

**Reason for Edit:**

The content of the paragraph seems to fall under availability and QoS which are later in the document. It does not add any requirement and is not very informative.

**Date Received:** 11/3/99

**Date Resolved:**

**Comment Type:** Technical

**Resolution Status:** unresolved

**Notes:**

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**Item Number:** 343

**Commentor Name:** Guillemette  
Phil

**Page Number:** 10

**Line Number:** 36

**Description of Edit**

Delete paragraph.

**Reason for Edit:**

The information is not required.

**Date Received:** 11/3/99

**Date Resolved:**

**Comment Type:** Technical

**Resolution Status:** unresolved

**Notes:**

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**Item Number:** 356

**Commentor Name:** Simon  
Francois

**Page Number:** 11

**Line Number:** 11

**Description of Edit**

Add "Q.931" to the list.

**Reason for Edit:**

ATM, as mentioned, elsewhere in the document, provides support for telephony and video conferencing. It seems natural that the ATM signaling protocol should be included here.

**Date Received:** 11/3/99

**Date Resolved:**

**Comment Type:** Technical

**Resolution Status:** unresolved

**Notes:**

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**Item Number:** 355

**Commentor Name:** Simon  
Francois

**Page Number:** 11

**Line Number:** 12

**Description of Edit**

Remove "ISDN PRI" from the list.

**Reason for Edit:**

The list already contains "Q.931" which is the ITU-T signaling protocol for ISDN BRI and PRI. Thus, ISDN PRI is redundant.

**Date Received:** 11/3/99

**Date Resolved:**

**Comment Type:** Technical

**Resolution Status:** unresolved

**Notes:**

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**Item Number:** 344

**Commentor Name:** Guillemette  
Phil

**Page Number:** 11

**Line Number:** 23

**Description of Edit**

Delete lines 23, 24, 25, and 26 up to "ATM standards define..."

**Reason for Edit:**

The information is not relevant to what 802.16 is trying to do.

**Date Received:** 11/3/99

**Date Resolved:**

**Comment Type:** Technical

**Resolution Status:** unresolved

**Notes:**

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**Item Number:** 346

**Commentor Name:** Guillemette  
Phil

**Page Number:** 11

**Line Number:** 29

**Description of Edit**

change "SHOULD" to "MUST"

**Reason for Edit:**

This is an important service, and like IP and voice, it must be supported.

**Date Received:** 11/3/99

**Date Resolved:**

**Comment Type:** Technical

**Resolution Status:** unresolved

**Notes:**

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**Item Number:** 345

**Commentor Name:** Guillemette  
Phil

**Page Number:** 11

**Line Number:** 29

**Description of Edit**

Delete line 29 and line 30 up to "802.16 protocols..."

**Reason for Edit:**

Information is not relevant.

**Date Received:** 11/3/99

**Date Resolved:**

**Comment Type:** Technical

**Resolution Status:** unresolved

**Notes:**



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**Item Number:** 347

**Commentor Name:** Guillemette  
Phil

**Page Number:** 11

**Line Number:** 32

**Description of Edit**

Delete sentence starting with "Thus".

**Reason for Edit:**

This requirement is pretty hard to test for. Not really the type of requirement that the document is trying to highlight.

**Date Received:** 11/3/99

**Date Resolved:**

**Comment Type:** Technical

**Resolution Status:** unresolved

**Notes:**

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**Item Number:** 357

**Commentor Name:** Simon  
Francois

**Page Number:** 11

**Line Number:** 36

**Description of Edit**

Add "(Q.931)" between "protocols" and "to establish"

**Reason for Edit:**

Provides the reader with a reference to the ATM message-based signaling protocol.

**Date Received:** 11/3/99

**Date Resolved:**

**Comment Type:** Editorial

**Resolution Status:** unresolved

**Notes:**

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**Item Number:** 348

**Commentor Name:** Guillemette  
Phil

**Page Number:** 12

**Line Number:** 10

**Description of Edit**

Delete section

**Reason for Edit:**

There is no requirement in this section.

**Date Received:** 11/3/99

**Date Resolved:**

**Comment Type:** Technical

**Resolution Status:** unresolved

**Notes:**

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**Item Number:** 312

**Commentor Name:** Goldhammer  
Marianna

**Page Number:** 12

**Line Number:** 20

**Description of Edit**

Insert: High reliability IP services shall be supported by an automatic retransmission mechanism. The number of retransmissions shall correspond to the IP datagram header type-of-service bits. The IP datagrams shall be transported according to 802.2 type 1 procedures."

**Reason for Edit:**

1. data service require higher reliability than legacy services. ARQ is used in wireless protocols to ensure the BER performance. For time critical IP services a low ARQ number should be used.  
2. Data packets should be treated as in 802.2

**Date Received:** 11/3/99

**Date Resolved:**

**Comment Type:** Technical

**Resolution Status:** unresolved

**Notes:**

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**Item Number:** 313

**Commentor Name:** Goldhammer  
Marianna

**Page Number:** 12

**Line Number:** 26

**Description of Edit**

Insert  
" 3.1.6 Virtual Private Network  
The 802.16 MAC and PHY shall permit VPN services. Support shall be given to IEEE 802.1q Virtual LAN protocols. Wired-line Equivalent Privacy shall be assured by adequate data encryption. The packets belonging to a VPN service shall not be mixed in a common frame with packets not belonging to the same VPN."

**Reason for Edit:**

Support business market requirements for VPN.

**Date Received:** 11/3/99

**Date Resolved:**

**Comment Type:** Technical

**Resolution Status:** unresolved

**Notes:**

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**Item Number:** 314

**Commentor Name:** Goldhammer  
Marianna

**Page Number:** 14

**Line Number:** 0

**Description of Edit**

Change the Digital Audio/Video stream to exactly the same layers as ATM, LLC, STM. Also delete the explanatory text from rows 21-24.

**Reason for Edit:**

1. Does not conform with the IEEE 802 reference model

**Date Received:** 11/3/99

**Date Resolved:**

**Comment Type:** Technical

**Resolution Status:** unresolved

**Notes:**

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**Item Number:** 359

**Commentor Name:** Simon  
Francois

**Page Number:** 15

**Line Number:** 22

**Description of Edit**

Replace "rain fall" with "atmospheric conditions"

**Reason for Edit:**

Atmospheric conditions, other than rain, such as snow, hail, fog and clouds may also affect the target performance levels.

**Date Received:** 11/3/99

**Date Resolved:**

**Comment Type:** Technical

**Resolution Status:** unresolved

**Notes:**

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**Item Number:** 349

**Commentor Name:** Guillemette  
Phil

**Page Number:** 16

**Line Number:** 22

**Description of Edit**

delete the two sentences starting at "This ..."

**Reason for Edit:**

This information is not required.

**Date Received:** 11/3/99

**Date Resolved:**

**Comment Type:** Technical

**Resolution Status:** unresolved

**Notes:**

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**Item Number:** 329

**Commentor Name:** Scott  
Marin

**Page Number:** 16

**Line Number:** 22

**Description of Edit**

Delete the sentence "This amounts to 53 minutes of outage a year"

**Reason for Edit:**

The sentence applied when the prior sentence called out 99.99% availability. As the prior sentence now states a range from 99.9 to 99.999%, the sentence "this amounts to 53 minutes of outage a year" is incorrect. Because the subsequent sentence put the outage time for 99.999% availability into perspective, the sentence "this amounts to 53 minutes of outage a year" can be deleted without changing the meaning of the paragraph.

**Date Received:** 11/3/99

**Date Resolved:**

**Comment Type:** Editorial

**Resolution Status:** unresolved

**Notes:**

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**Item Number:** 306

**Commentor Name:** Fishel  
George

**Page Number:** 16

**Line Number:** 40

**Description of Edit**

Delete the Paragraph from line 40 to 44.

**Reason for Edit:**

Errored seconds is not a measurement of availability. The paragraph is in error.

**Date Received:** 11/3/99

**Date Resolved:**

**Comment Type:** Editorial

**Resolution Status:** unresolved

**Notes:**

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**Item Number:** 330

**Commentor Name:** Scott  
Marin

**Page Number:** 16

**Line Number:** 40

**Description of Edit**

Delete the paragraph on lines 40-43.

**Reason for Edit:**

The paragraph has several editorial and technical problems. Editorially, I believe that G.826 limits the errored second ratio to be at most 0.04 and that the severely errored second ratio to at most 0.002 instead of "defining" these ratios to be exactly 0.04 and 0.002, respectively. As noted in line 29, unavailability begins at the onset of 10 consecutive SES. Availability goals in the range 99.9 to 99.999% are not the same as errored second ratio or severely errored second ratio; therefore, the sentence "Note that this is below the 99.99% goal" is incorrect because 99.99% doesn't apply to ES or SES. The sentence is also vague because the pronoun "this" is unclear. Because there are no requirements in lines 40-43 and because repairing the paragraph will take some time, I recommend deleting the paragraph.

**Date Received:** 11/3/99

**Date Resolved:**

**Comment Type:** Technical

**Resolution Status:** unresolved

**Notes:**

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**Item Number:** 350

**Commentor Name:** Guillemette  
Phil

**Page Number:** 16

**Line Number:** 43

**Description of Edit**

delete sentence beginning with "Note..."

**Reason for Edit:**

serves no purpose.

**Date Received:** 11/3/99

**Date Resolved:**

**Comment Type:** Technical

**Resolution Status:** unresolved

**Notes:**

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**Item Number:** 360

**Commentor Name:** Simon  
Francois

**Page Number:** 17

**Line Number:** 2

**Description of Edit**

Replace "rain fall (rain rate and droplet size and other factors)" with "atmospheric conditions (e.g.: rain rate and droplet size and other factors)".

**Reason for Edit:**

Atmospheric conditions other than rain (snow, fog, hail, may contributes to excessive attenuation.

**Date Received:** 11/3/99

**Date Resolved:**

**Comment Type:** Technical

**Resolution Status:** unresolved

**Notes:**

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**Item Number:** 361

**Commentor Name:** Simon  
Francois

**Page Number:** 17

**Line Number:** 3

**Description of Edit**

Replace "rain fall" with "atmospheric conditions".

**Reason for Edit:**

Already addressed in previous comments

**Date Received:** 11/3/99

**Date Resolved:**

**Comment Type:** Technical

**Resolution Status:** unresolved

**Notes:**

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**Item Number:** 362

**Commentor Name:** Simon  
Simon

**Page Number:** 17

**Line Number:** 5

**Description of Edit**

Replace "rain fall" with "atmospheric conditions"

**Reason for Edit:**

Already addressed in previous comments

**Date Received:** 11/3/99

**Date Resolved:**

**Comment Type:** Technical

**Resolution Status:** unresolved

**Notes:**

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**Item Number:** 363

**Commentor Name:** Simon  
Francois

**Page Number:** 17

**Line Number:** 12

**Description of Edit**

Replace "rain fall" with "atmospheric conditions".

**Reason for Edit:**

Already addressed with previous related comments.

**Date Received:** 11/3/99

**Date Resolved:**

**Comment Type:** Technical

**Resolution Status:** unresolved

**Notes:**

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**Item Number:** 315

**Commentor Name:** Goldhammer  
Marianna

**Page Number:** 17

**Line Number:** 22

**Description of Edit**

In order to assure this BER, the support for data retransmission shall be implemented in the MAC protocols."

**Reason for Edit:**

Radio performance is generally defined at a BER=10exp-6 and special provision should be provided for data error correction using retransmissions.

**Date Received:** 11/3/99

**Date Resolved:**

**Comment Type:** Technical

**Resolution Status:** unresolved

**Notes:**

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**Item Number:** 339

**Commentor Name:** Yee  
Jung

**Page Number:** 17

**Line Number:** 22

**Description of Edit**

Replace "bit error rate" with "bit error ratio"

**Reason for Edit:**

To be consistent with section 10.2

**Date Received:** 11/3/99

**Date Resolved:**

**Comment Type:** Editorial

**Resolution Status:** unresolved

**Notes:**

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**Item Number:** 364

**Commentor Name:** Simon  
Francois

**Page Number:** 18

**Line Number:** 4

**Description of Edit**

Delete the word "between"

**Reason for Edit:**

The sentence is meaningless as it stands

**Date Received:** 11/3/99

**Date Resolved:**

**Comment Type:** Editorial

**Resolution Status:** unresolved

**Notes:**

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**Item Number:** 300

**Commentor Name:** Scott  
Marin

**Page Number:** 18

**Line Number:** 4

**Description of Edit**

Delete the delay definitions, lines 4 through 11.

**Reason for Edit:**

The delay definitions need improvement. For example, the phrase "ready to transmit" and "actually begins transmission" can be interpreted in several way and needs a more precise definition. In addition, the end-to-end delay from BNI to SNI and SNI to BNI contains functions outside of the MAC and PHY for which no delay assumptions or allocation is provided. In Table 1, it's not clear which, if any, of the delay definitions are being used. The actual delay through the MAC and PHY are not defined, which is probably the most important definition for 802.16 to get correct. The notion of delay for initially configuring a connection versus the steady state delay during payload transmission is not defined.

**Date Received:** 11/3/99

**Date Resolved:**

**Comment Type:** Technical

**Resolution Status:** unresolved

**Notes:**

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**Item Number:** 366

**Commentor Name:** Simon  
Francois

**Page Number:** 18

**Line Number:** 42

**Description of Edit**

Replace "rain" with "atmospheric conditions".

**Reason for Edit:**

Already addressed in previous comments

**Date Received:** 11/3/99

**Date Resolved:**

**Comment Type:** Technical

**Resolution Status:** unresolved

**Notes:**

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**Item Number:** 365

**Page Number:** 18

**Line Number:** 42

**Commentor Name:** Simon  
Francois

**Description of Edit**

Replace "maximum error rates" with "minimum error rates".

**Reason for Edit:**

While it can be views both ways, a positive statement is better than a negative one!.

**Date Received:** 11/3/99

**Date Resolved:**

**Comment Type:** Editorial

**Resolution Status:** unresolved

**Notes:**

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**Item Number:** 316

**Page Number:** 19

**Line Number:** 20

**Commentor Name:** Goldhammer  
Marianna

**Description of Edit**

Insert  
"5.9 Cost issues  
In order to provide a cost-effective solution, the 802.16 PHY and MAC protocols shall permit half-duplex operation of the subscriber station."

**Reason for Edit:**

Permit lower cost radio solutions

**Date Received:** 11/3/99

**Date Resolved:**

**Comment Type:** Technical

**Resolution Status:** unresolved

**Notes:**

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**Item Number:** 317

**Page Number:** 19

**Line Number:** 21

**Commentor Name:** Goldhammer  
Marianna

**Description of Edit**

Insert  
" 5.10 Deployment issues  
  
Large enterprises can afford the high antennae installation costs required for line-of-sight radio propagations. However, it is necessary to ensure a low cost deployment solution that utilizes near-line-of-sight propagation, based on reflections, for the residential areas.  
The SoHo and Telecommuter communities are generally located in the residential areas, and as such, 802.16 shall support the deployment restrictions of this geographical area. The 802.16 may draft one or two different modems, one for line-of-sight conditions encountered in business areas, and the other for near-line-of-sight and multi-pass conditions specific for residential areas, to cater for these differing applications and zones."

**Reason for Edit:**

Introduce adequate PHY requirements for the near-line-of-sight deployment, that can give a cost effective solution for the large SoHo/small business/telecommuter market. There are precedents in 802.11:  
3 different PHYs in the first release, more 2 PHYs in the second release.

**Date Received:** 11/3/99

**Date Resolved:**

**Comment Type:** Technical

**Resolution Status:** unresolved

**Notes:**

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**Item Number:** 340

**Page Number:** 19

**Line Number:** 26

**Commentor Name:** Yee  
Jung

**Description of Edit**

Change "ATM" to "ATM Forum"

**Reason for Edit:**

To be consistent with IETF mentioned in the sentence

**Date Received:** 11/3/99

**Date Resolved:**

**Comment Type:** Editorial

**Resolution Status:** unresolved

**Notes:**

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**Item Number:** 308

**Commentor Name:** Guillemette  
Phil

**Page Number:** 19

**Line Number:** 35

**Description of Edit**

Insert "In addition to the QoS requirements listed in Table 1, the MAC and PHY must ensure an upper bound on the jitter that they add to the traffic. Although the MAC jitter, other than that which is added due to scheduling, can be virtually removed by dejitter buffering, the buffering must not cause the delay bound to be exceeded."

**Reason for Edit:**

This should be added to ensure that the jitter requirements are met for the different QoS. Ideally, values should be included in the table; however, I was unable to find an accurate quantification for these values.

**Date Received:** 11/3/99

**Date Resolved:**

**Comment Type:** Technical

**Resolution Status:** unresolved

**Notes:**

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**Item Number:** 318

**Commentor Name:** Myers  
William

**Page Number:** 19

**Line Number:** 35

**Description of Edit**

Add to end of sentence (... various bearer services.), the words "that the

**Reason for Edit:**

This imposes the QoS parameters of Table 1 as requirements.

**Date Received:** 11/3/99

**Date Resolved:**

**Comment Type:** Technical

**Resolution Status:** unresolved

**Notes:**

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**Item Number:** 333

**Commentor Name:** Scott  
Marin

**Page Number:** 20

**Line Number:** 6

**Description of Edit**

Replace "Bit Error Rate" column "Maximum Ratio". Add BER to the Circuit Based rows so that BER  $10^{-6}$ .

**Reason for Edit:**

The column contains several types of ratios in addition to BER. It's incorrect to label the column only BER. In addition, the ratios are maximums.

**Date Received:** 11/3/99

**Date Resolved:**

**Comment Type:** Editorial

**Resolution Status:** unresolved

**Notes:**

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**Item Number:** 307

**Commentor Name:** Fishel  
George

**Page Number:** 20

**Line Number:** 6

**Description of Edit**

Change the column hearing "Bitrate(s)" to "throughput rate(s)"

**Reason for Edit:**

The over-the-air bit rate contains additional overhead bits for things like forward error correction that should not be included in this column.

**Date Received:** 11/3/99

**Date Resolved:**

**Comment Type:** Editorial

**Resolution Status:** unresolved

**Notes:**

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**Item Number:** 334

**Commentor Name:** Scott  
Marin

**Page Number:** 20

**Line Number:** 6

**Description of Edit**

Replace "Delay (One way)" with "Maximum Delay (One way)"

**Reason for Edit:**

The delay requirement is a maximum and not a nominal as currently implied by the table.

**Date Received:** 11/3/99

**Date Resolved:**

**Comment Type:** Editorial

**Resolution Status:** unresolved

**Notes:**

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**Item Number:** 331

**Commentor Name:** Scott  
Marin

**Page Number:** 20

**Line Number:** 6

**Description of Edit**

Move Table 1 title from bottom to top of table.

**Reason for Edit:**

to follow conventional style for technical writing.

**Date Received:** 11/3/99

**Date Resolved:**

**Comment Type:** Editorial

**Resolution Status:** unresolved

**Notes:**

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**Item Number:** 335

**Commentor Name:** Scott  
Marin

**Page Number:** 20

**Line Number:** 6

**Description of Edit**

add text to define all ratios.

**Reason for Edit:**

What are the definition of all of the ratios CMR and SECBR mean?

**Date Received:** 11/3/99

**Date Resolved:**

**Comment Type:** Editorial

**Resolution Status:** unresolved

**Notes:**

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**Item Number:** 319

**Commentor Name:** Myers  
William

**Page Number:** 20

**Line Number:** 6

**Description of Edit**

In Table 1, the column heading for Delay (one way), add "Maximum" prior to Delay.

**Reason for Edit:**

This establishes a maximum limit rather than a range of values.

**Date Received:** 11/3/99

**Date Resolved:**

**Comment Type:** Technical

**Resolution Status:** unresolved

**Notes:**

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**Item Number:** 332

**Commentor Name:** Scott  
Marin

**Page Number:** 20

**Line Number:** 6

**Description of Edit**

Replace "Bitrate(s)" column with "Information Rate"

**Reason for Edit:**

To make it clear that the rates are payload information rates and not the over-the-air rates that include FEC bits.

**Date Received:** 11/3/99

**Date Resolved:**

**Comment Type:** Technical

**Resolution Status:** unresolved

**Notes:**

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**Item Number:** 320

**Commentor Name:** Myers  
William

**Page Number:** 20

**Line Number:** 6

**Description of Edit**

In the Delay column, for all instances change 10 - 20 ms to 10 ms.

**Reason for Edit:**

This establishes a defined maximum limit for delay rather than a range of values to fall into.

**Date Received:** 11/3/99

**Date Resolved:**

**Comment Type:** Technical

**Resolution Status:** unresolved

**Notes:**



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**Item Number:** 321

**Page Number:** 20

**Line Number:** 8

**Commentor Name:** Myers  
William

**Description of Edit**

Add sentence after Table 1: "Note that delay refers to the transmission delay from the MAC input from the upper layer at the transmit terminal to the MAC output to the upper layer at the receive terminal for information

**Reason for Edit:**

This is intended to clarify the meaning of delay to include transit delay through the MAC and PHY path for information transmission.

**Date Received:** 11/3/99

**Date Resolved:**

**Comment Type:** Editorial

**Resolution Status:** unresolved

**Notes:**

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**Item Number:** 367

**Page Number:** 21

**Line Number:** 5

**Commentor Name:** Simon  
Francois

**Description of Edit**

Moving the word "rate" at the end of "Non-Real-Time" and place it after "Variable Bit" so that the expression reads "Variable Bit Rate: Non-Real-Time".

**Reason for Edit:**

Consistency with the ATM Forum definition

**Date Received:** 11/3/99

**Date Resolved:**

**Comment Type:** Editorial

**Resolution Status:** unresolved

**Notes:**

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**Item Number:** 351

**Page Number:** 21

**Line Number:** 16

**Commentor Name:** Guillemette  
Phil

**Description of Edit**

delete until line 36

**Reason for Edit:**

Integrated Services are not likely to play a very big role, if any at all, in IP QoS.

**Date Received:** 11/3/99

**Date Resolved:**

**Comment Type:** Technical

**Resolution Status:** unresolved

**Notes:**

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**Item Number:** 368

**Page Number:** 22

**Line Number:** 41

**Commentor Name:** Simon  
Francois

**Description of Edit**

Reorder the list in the following fashion: Fault management; Configuration management; Accounting management; Performance management; Security.

**Reason for Edit:**

Very minute point - This change provides the order compatible with the widely used acronym FCAPS (Fault, Configuration, Accounting, Performance, Security) to specify the 5 network management disciplines.

**Date Received:** 11/3/99

**Date Resolved:**

**Comment Type:** Editorial

**Resolution Status:** unresolved

**Notes:**

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**Item Number:** 369

**Page Number:** 23

**Line Number:** 9

**Commentor Name:** Simon  
Francois

**Description of Edit**

Add the following, or equivalent, to the end of the paragraph: "The 802.16 protocols MUST also permits subscribers to monitor performance service levels of the 802.16 services being provided at the delivery point".

**Reason for Edit:**

The current trend in the industry is that more and more 'users' of telecommunications services want to monitor the service being provided to them to insure compliance to the SLAs. The current text, as it stands, seems to address the 802.16 operator view point only.

**Date Received:** 11/3/99

**Date Resolved:**

**Comment Type:** Editorial

**Resolution Status:** unresolved

**Notes:**

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**Item Number:** 370

**Commentor Name:** Simon  
Francois

**Page Number:** 23

**Line Number:** 13

**Description of Edit**

Replace "BTS" with "base station"

**Reason for Edit:**

Maintain consistency with this version of the document.

**Date Received:** 11/3/99

**Date Resolved:**

**Comment Type:** Editorial

**Resolution Status:** unresolved

**Notes:**

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**Item Number:** 371

**Commentor Name:** Simon  
Francois

**Page Number:** 23

**Line Number:** 22

**Description of Edit**

No particular change proposed

**Reason for Edit:**

The 802.16 working group(s) may want to look at the work being done (if not already done so) by the 802.11 related to security. It is not suggested here that an 802.11 network is similar to a 802.16 network. However, there may be similar security issues.

**Date Received:** 11/3/99

**Date Resolved:**

**Comment Type:** Technical

**Resolution Status:** unresolved

**Notes:**

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**Item Number:** 372

**Commentor Name:** Simon  
Francois

**Page Number:** 23

**Line Number:** 32

**Description of Edit**

Delete space between "station at" and the start of the next line

**Reason for Edit:**

Facilitate reading of the document.

**Date Received:** 11/3/99

**Date Resolved:**

**Comment Type:** Editorial

**Resolution Status:** unresolved

**Notes:**

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**Item Number:** 373

**Commentor Name:** Simon  
Francois

**Page Number:** 23

**Line Number:** 35

**Description of Edit**

Delete the space between "station from" and the start of the next line.

**Reason for Edit:**

Facilitate the reading of the document

**Date Received:** 11/3/99

**Date Resolved:**

**Comment Type:** Editorial

**Resolution Status:** unresolved

**Notes:**

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**Item Number:** 358

**Commentor Name:** Simon  
Francois

**Page Number:** 33

**Line Number:** 3

**Description of Edit**

Add "(Q.933)" between "defined and "and in use".

**Reason for Edit:**

Provides the reader with a reference to the Frame Relay signaling protocol.

**Date Received:** 11/3/99

**Date Resolved:**

**Comment Type:** Editorial

**Resolution Status:** unresolved

**Notes:**

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**Item Number:** 374

**Commentor Name:** Simon  
Francois

**Page Number:** 34

**Line Number:** 6

**Description of Edit**

Add "CoS - Class of Service" to the table.

**Reason for Edit:**

Provide consistency with the rest of the table; QoS is specified.

**Date Received:** 11/3/99

**Date Resolved:**

**Comment Type:** Editorial

**Resolution Status:** unresolved

**Notes:**

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**Item Number:** 375

**Commentor Name:** Simon  
Francois

**Page Number:** 34

**Line Number:** 6

**Description of Edit**

Remove 'rate' at the end of "variable Bit Rate: Non-Real-Time rate" so that it reads "Variable Bite Rate: Non-Real-Time".

**Reason for Edit:**

Consistency with ATM Forum Definition

**Date Received:** 11/3/99

**Date Resolved:**

**Comment Type:** Editorial

**Resolution Status:** unresolved

**Notes:**