Project	**IEEE 802.20 Working Group on Mobile Broadband Wireless Access** **<http://grouper.ieee.org/groups/802/20/>**
Title	**Draft Meeting Minutes, 802.20 Plenary Meeting - Session #9, Portland, OR July 12-16, 2004**
Date Submitted	**2004-7-16**
Source(s)	Rao Yallapragada QUALCOMM, Incorporated 5775 Morehouse Drive San Diego, CA, 92121 Voice: +1 858 658 4540 Fax: +1 858 651 2880 Email: rao@qualcomm.com
Re:	**802.20 Session#9**
Abstract	Draft of the Minutes of the Session #9;
Purpose	Minutes of the Session.
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Draft - Meeting Minutes of the 802.20 Session #9

July 12-16, 2004
Portland, OR

Rao Yallapragada
Secretary

The ninth session of 802.20 was held at the July 2004 Plenary meeting of IEEE 802 in Portland, Oregon.

The session began with an opening plenary meeting at 11:00 am on July 12, 2004. The meeting ended at 12:00 pm.

The 802.20 WG had a joint opening interim session with 802.11, 802.15, 802.18, 802.19, 802.21 from 1:30 AM to 3:35 AM on Monday, July 12, 2004. The following items were were discussed during this meeting:

- IEEE 802 meeting conduct
- Voting Rights
- IEEE-SA Standards Board Bylaws on Patents in Standards
- Logistics for the session
- Next Meeting information

Contributions and WG documents referenced in these minutes may be found at the 802.20 website, http://www.ieee802.org/20/

See **Appendix A** for the attendance list.

Minutes of 802.20 Monday July 12, 2004

Meeting started at 3:50 am.

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The chair requested the attendees to collect their voting tokens.

Voting tokens were granted as the WG participants signed off and noted their affiliations.

Time: 4:20 pm

Chair then presented the proposed agenda for the current session (**Appendix B**).

After a brief discussion, the proposed agenda was approved with unanimous consent without objections.

Time: 4:30 pm

Chair announced that he will give credit for PM1 and PM2 sessions together as there was some problem with the attendance website this afternoon.

The Meeting Minutes for March Plenary and May Interim sessions were then presented

for approval.

The meeting minutes for both the sessions were approved by unanimous consent without objections..

Time: 4:31 pm

Chair brought up the discussion on other work activities that are being considered for the current IEEE 802 July 2004 session. He also reviewed the new PARs that are now under consideration for reaffirmation by all the WGs.

The following are the WGs that are considering new PARS.

1. 802.3ar
2. 802.11p
3. 802.11T

4. 802.16e
5. 802.16f
6. 802.16g

7. 802.22 (802.18 Study Group)

The chair requested comments.

Discussion followed on the possible impact of the new PARs on the proceedings of the current WG IEEE 802.20.

Time: 4:36 pm

Motion 1

802.16e Proposed PAR Amendment

The 802.20 Working Group does not approve the proposed 802.16e PAR Amendment. The group strongly recommends the 802 Executive Committee not approve the 802.16e PAR Amendment.

Mover: Dan Gal
Second: Mark Klerer

Results:
Yes: 54
No: 0
Abstain: 2
Motion Passes

Time: 4:45
Note: The results of this Motion and associated Rationale will be provided to the Chair of

802.16 before 5:00pm Tuesday, July 13. 2004 per the 802 P&P.

Rationale for Not Approving the proposed 802.16e PAR Amendment:
1. The basis on which 802.20 and 802.16e PARs were authorized was that the projects were unique due to the following differences:
a) .16e required backwards compatibility with Fixed Access (16a). 802.20 was to be a clean sheet design with no constraints
b) .16e was to address the frequency bands between 2-6 GHz. 802.20 the frequency bands below 3.5 GHz
c) .16e was only interested in channels wider than 5 MHz. 802.20 was addressing channels as narrow as 1.25 MHz
2. The current PAR as indicated in item 19 allows Non-Backward Compatible Modes. Such a project **is** already being done by 802.20. Furthermore, the rationale for when backward compatible is required and when it is not clearly has no technical sound justification; viz. FFT sizes 1024, 512 and 128 are not required to remain compatible, whereas the 256 and 2048 FFT sizes are. Backward compatibility should be required in all modes.
3. With no stated rationale or justification the amended PAR (see Item 13) has removed the lower limit of the 2 GHz (specified in item 12 of the original PAR) and replaced the upper limit with 11GHz. Again this blurs the distinction between 802.20 and 802.16. The lower limit should be maintained.
4. The reasons for the scalable PHY were based on support of 1.25 MHz channels. As described above these are already covered by 802.20.
5. Even the sub-criterion (Distinct Identity) of "Easy for the document reader to select the relevant specification" would be violated by this amendment as no reader expects to find a collection of disparate specifications with multiple permutations on PHY/MAC/Mobile/Fixed in a single document and have to sort out what would be applicable.

The original PAR that provides for mobility support via FULLY backward compatible systems was unique – the revised PAR is redundant and not needed as such a project can and is already authorized in the 802.20 PAR.

Note: The Working Group may assign an Ad-Hoc to update/modify/enhance the above Rationale before sending to the 802.16 Chair. Such an Ad-Hoc will need to report back to the Group before 2pm on Tuesday, July 13, 2004 for final approval by the Group. If no approval is reached, the original rationale shall be submitted to the 802.16 Chair**.**

Motion #2

802.16e Proposed PAR Amendment
"Directed Position"

The 802.20 Working Group Directs the Chair of 802.20 to vote "No" in the Executive Committee regarding the approval of the proposed 802.16e PAR. The Group recommends the 802 Executive Committee not approve the 802.16e PAR.

Mover: Dan Gal
Second: Mark Klerer

Results:
Yes: 53
No: 0
Abstain: 3

Motion passes
Time: 4:47 pm

Note: As this Motion is approved by > 75% of the 802.20 members, this will be a Directed Position for the 802.20 Chair to vote "No" in the Executive Committee regarding approval of the 802.16e PAR Amendment.

Motion#3

802.16g Proposed PAR Amendment

The 802.20 Working Group does not approve the proposed 802.16g PAR. The group recommends the 802 Executive Committee not approve the 802.16g PAR.

Mover: Mark Klerer
Second: Dan Gal
Results:
Yes: 54
No: 0
Abstain: 2

Motion Passes
Time: 4: 49 pm

Note: The results of this Motion and associated Rationale will be provided to the Chair of 802.16 before 5:00pm Tuesday, July 13. 2004 per the 802 P&P.

Rationale for Not Approving the proposed 802.16g PAR:

1. This PAR is premature and should be reviewed again after the scope of 802.16e is clarified.
2. This proposed IEEE project should be limited to management of the PHY and MAC.

Note: The Working Group may assign an Ad-Hoc to update/modify/enhance the above Rationale before sending to the 802.16 Chair. Such an Ad-Hoc will need to report back to the Group before 2pm on Tuesday, July 13, 2004 for final approval by the Group. If no approval is reached, the original rationale shall be submitted to the 802.16 Chair**.**

Motion#4:

802.16g Proposed PAR Amendment

“Directed Position’

The 802.20 Working Group Directs the Chair of 802.20 to vote “No” in the Executive Committee regarding the approval of the proposed 802.16g PAR. The group recommends the 802 Executive Committee not approve the 802.16g PAR.

Mover: Mark Klerer
Second: Dan Gal
Results:
Yes: 52
No: 0
Abstain: 2

Motion Passes
Time: 4:52 pm

Note: Since this Motion is approved by >75% of the 802.20 members, this will be a Directed Position for the 802.20 Chair to vote “No” in the Executive Committee regarding approval of the 802.16g PAR Amendment.

The chair permitted Carl Stevenson from WG 802.18 to present an overview and the rationale for the new proposed PAR to form new WG 802.22

The new PAR is about the formation of a new WG 802.22 to address the usage of unlicensed spectrum for TV channels in Rural areas.

Carl Stevenson wanted to get a consensus approval for the new PAR from the 802.20 WG

Discussion followed with some attendees expressing views in favor and some expressing concerns with the proposed PAR

Time: 5:10 pm

Motion#5

Move to have the 802.20 WG oppose the 802.18SG PAR

Rationale: Not to approve the 802.18 PAR – motion is against the formation of work group new study group. Work can be done in other groups

Mover: Alfred Wieczorek
Second: Jim Ragsdale

Discussion followed

Carl Stevenson argued against the motion and tried to alleviate the concerns of the WG members.

Mark Klerer: suggested that 802.20 WG examine this further and provide comments to Carl Stevenson by tomorrow and Carl Stevenson gets a chance to address the comments rather than proceeding with the current motion

Time: 5:25 pm

Further Discussion

Various members expressed skepticism, the lack of enough understanding and raised doubts about the possible repercussions.

Carl Stevenson requested to table the motion and promised to provide more detailed understanding and justification for the new PAR to the interested parties at a meeting at 6:30 to 9:30 pm today

Motion #6

Motion to table the above motion #5
Mover: Carl Stevenson
Second: Eshwar Pittampalli

No objections:

Motion is tabled
Time 5:42 pm

Presentation by Eshwar Pittampalli on "Liaison relationships" (C802.20-04-69)

The Vice Chair told the WG that the ITU is responsible for the development and maintenance of IMT-2000 standards. In addition, the ITU is examining technologies beyond IMT-2000. Then he clarified the format for drawing information on various Organizations to establish Liaison relationships with external standards developing organization (SDO) for exchange of information of mutual interest.

Discussion followed

Eshwar Pittampalli requested inputs from the WG to revise the document.

Chair requested for suggestions for topics and proposals for discussions/Ad hoc group workouts for tonight (7/12/04)

Chair announced the following Adhoc group workouts to address the following:

1) SG1 802.18 Overview Meeting
2) Adhoc group to discuss the revisions to Liaison Relationships Rev 1 document

Time: 6:03 pm

Meeting recessed for the day.Tuesday, July 13, 2004

Meeting began at 8:00 am

The chair reviewed the agenda for the day.

Yesterday a short group of people attended a meeting proposed by Carl Stevenson in WG802.18.

The motion #5 that was tabled yesterday was brought over for a discussion and vote.

Motion #5

The 802.20 WG opposes the 802.18SG PAR

Discussion followed

Carl Stevenson was requested to present the salient points of justification for the proposed PAR. The justification is included in **Appendix C.**

Chair requested for comments.

Motion on the table

Results:

Yes: 4
No: 19
Abstain: 22

Motion failed

Time: 8:33 pm

Discussion on Requirements Status & Process for Closure

To clarify the process, Chair presented the following SRD Section and Comment Priorities for this meeting were defined as follows:

1. Sections with Option listed in Version 13
2. Sections with Conflicting technical Comments
3. Sections for Reaffirmation from Votes in May
4. Sections with No Comments
5. Editorial comments

The Chair then presented the process for closure of the Requirements Document for this meeting.

1. Review Section based upon Priorities set, not by order of document.
2. Sections with Options, following a fast Comment review will be voted using "March Voting."
3. Group Replies/Comments by section and vote options via Straw Polls and then Motion. 'March Voting'. and move forward.
4. Limit the scope of the discussion inputs by requirement section to the Comments & Replies in the database. Alternatives can be proposed as part of Comment resolution.
5. Sections already approved by 75% Group vote need 75% to reopen are closed.
6. Reaffirm votes from MAY interim as a whole unless there are exceptions.
7. Vote whether the group has agreed sufficient sections that the requirements document version 1 is completed.

Discussion followed.

The chair stated that we cannot vote on the same section again and again and that we need to move on unless somebody reopens a section with a vote.

Presentation by Sarvar Patel on "Function Requirements for 802.20 Security" (C802.20-04/65)

Presentation by Florent Bersani on "Moving forward on IEEE 802.20 Security: where are we and where do we want to go" (C802.20-04/62)

Chair requested to form an Ad-hoc group to discuss the functional requirements for Security IEEE 802.20 standard

Break: 10: 30 am
Resume: 11: 00 am

Requirements Comment Resolution and Voting

Note: Section numbers in these minutes are based upon SRD version 13 and not the final version 14 approved.

Discussion on Section 4.1.5.1

The editor reviewed all the different reply comments on section 4.1.5.1

Lunch Break: 12:30 pm to 1:30 pm

Review of Section 4.1.5.1

A structural change is proposed where section 4.1.6 is introduced to replace section 4.1.5.1. Section 4.1.6 will now have subsections 4.1.6.1 (Peak User Data Rates) and 4.1.6.2 (Average user Data Rates)

Straw Poll

In favor of Option 1[Average user data rates in a loaded system shall be in excess of 512 kbps downlink and 128 kbps uplink. This shall be true for 90%of the cell coverage]:

Yes: 1

In favor of Option 2:

Yes: 2

In favor of Option 3 (to delete the section):

Yes: 47

Motion #7

To adopt to delete Section 4.1.6.2

Mover: Joanne Wilson
Second: Dan Gal

Results:

Yes: 49
No: 1
Abstain: 0

Time: 2:15 am
Motion passes

Review Section 4.5.4 (OA&M Support)

A new option #4 was created based on the input from the participants.

Option 4: The AI shall provide the specific features to enable the provisioning and collection of metrics, so that the network operator can effectively control, monitor, and tune the performance of the 802.20 air interface. Provisionable parameters, performance metrics and other OA&M values shall be made available through a standards compliant MIB.

Motion #8

To adopt Option 4 for section 4.5.4

Mover: Scott Migaldi
Second: Joanne Wilson

Results:

Yes: 46
No: 0
Abstain: 1

Time: 2:38 pm
Motion passes

Review Section 4.2.3 (Performance Under Mobility & Delay Spread)

A new option #4 was proposed. The following is the text of Option 4.

Option4: The system shall work in dense urban, urban, suburban, rural, outdoor-indoor, pedestrian and vehicular.

Discussion followed.

Break: 3:00 pm
Resume: 3:15 pm

Motion # 9

Move to adopt Option 3 as text for Section 4.2.3

(Option 3: The system shall work in dense urban, urban, suburban, rural, outdoor-indoor, pedestrian, and vehicular environments and the relevant channel models shall be applicable.)

Mover: Mark Klerer
Second: Lynne Dorward

Results:
Yes: 46
No: 0
Abstain: 0

Time: 3:22 pm
Motion passes

Review of Section 4.1.7.1 (Latency and Packet Error Rate)

The Requirements Document Editor read out all the comments and reply comments on this section.

Discussion followed.

It was decided to have an Ad-hoc group to work out new text on this section tonight. Doug Knisley is assigned to lead work on this item.

Review of Section 4.1.5.1

Discussion continued on Section 4.1.5.1

It was decided to resume the discussion for later tomorrow.

4:50 pm

Meeting recessed for the day

Wednesday, July 14, 2004

Meeting began at 8:00 am.

Chair announced that meeting would continue with the review of the Requirements

Review of Section 4.1.7.1 (Latency and Packet Error Rate)

There was an Ad-hoc meeting yesterday on Section 4.1.7.1

Doug Knisely presented the following text that was worked out for Section 4.1.7.1 during the Ad-hoc meet.

"The system shall support the configuration (e.g., by the system operator) of a flexible set of traffic classes, in order to meet the end-user QoS requirements for the various applications, for example, as recommended by ITU[1]. The 802.20 standard shall support the ability to negotiate the traffic class associated with each packet flow.[2] The 802.20 standard shall permit the set of traffic classes to be defined by the system operator in terms of QoS attributes (along with the range of allowed values[3]) that include the following:

- data rate (ranging from the lowest supported data rate to maximum data rate supported by the MAC/PHY),
- latency (delivery delay) (ranging from 10 ms to 10 seconds),
- packet error rate (after all corrections provided by the MAC/PHY layers) (ranging from 10E-8 to 10E-1), and
- delay variation (jitter) (ranging from 0 to 10 seconds).

The 802.20 standard should support (but not require) PHY/MAC implementations that satisfy the QoS characteristics that are specified by the traffic classes defined in the following references:

1. RFC 2475, "An Architecture for Differentiated Services"
2. RFC 2598, "An Expedited Forwarding PHB"
3. RFC 2597, "Assured Forwarding PHB Group"
4. http://www.ietf.org/internet-drafts/draft-baker-diffserv-basic-classes-01.txt

As is the case for all wireless networks, the specified QoS characteristics for certain traffic classes or services need only be satisfied in deployments and RF link conditions that are appropriate to permit the desired characteristics to be feasible. However, the 802.20 MAC/PHY structure supports the capabilities to negotiate and deliver all of the QoS characteristics specified for the indicated traffic classes."

Chair requested for comments and questions.

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[1] ITU G.1010 ["Draft New Recommendation G.QoSRQT – End-user Multimedia QoS Categories", ITU-T study group 12, contribution 37, August 2001]

[2] There can be multiple packet flows associated with a single user, and multiple users associated with a single mobile terminal, e.g., in the case where a mobile terminal is a device providing service for multiple end devices.

[3] No specific granularity for these parameters is implied by this requirement.

Motion #10

Move to approve the text presented above for Section 4.1.7.1

Mover: Mark Klerer
Second: Dan Gal

Results:

Yes: 49
No: 0
Abstain: 1

Time: 8:30 am
Motion Passes

Review of new Section 4.1.6.1 (old 4.1.5.1)

Eshwar Pittampalli presented a new baseline text for section 4.1.6.1.

Chair requested for comments and discussion.

The text was altered based on the comments from the working group.

After considerable discussion, it was decided to defer the discussion and resume after the Morning break.

Review of section 4.1.5 (Aggregate Data Rates – Downlink and Uplink)

Based on the comments, new worked out text

Motion #11

Move to adopt the following text for section 4.1.5:

"The aggregate data rate for downlink and uplink shall be consistent with spectral efficiency requirements of section 4.1.1."

Mover: Mark Klerer
Second: Rashmi Bajaj

Results
Yes: 41
No: 0
Abstain: 1

Time: 9:15 am
Motion passes

Review of Section 4.1.6 (Number of Simultaneous Users)

The Editor went through all the reply comments on this section.

The chair requested for any further comments.
Discussion continued

Break: 10:05 till 10:45 am.

Discussion resumed on section 4.1.6

Based on the comments from the WG, following options were proposed as an alternative to the current text for section 4.1.6:

Option 1

"The MAC Layer should be able to control > 50 simultaneous active sessions per sector. An active session is a time duration during which a user can receive and/or transmit data with potentially a short delay (i.e. in the absence of service level constraints such as delays caused by the needs to satisfy QoS commitments to other users). In this state the user should have a radio bearer channel available with a delay of less than 25 ms. This requirement shall be met regardless of whether the sessions are all on one or multiple terminals.

Note that certain applications will have to be given preferential treatment with respect to delay in order to satisfy QoS requirements, e.g. VoIP.

This requirement applies to a FDD 2 X 1.25 MHz or TDD 2.5 MHz system. This parameter should scale linearly with system bandwidth if the same application mixes are assumed."

Option 2

"The MAC Layer should be able to control > 100 simultaneous active sessions per sector. An active session is a time duration during which a user can receive and/or transmit data with potentially a short delay (i.e. in the absence of service level constraints such as delays caused by the needs to satisfy QoS commitments to other users). In this state the user should have a radio bearer channel available with a delay of less than 25 ms with a probability of at least 0.9. This requirement shall be met regardless of whether the sessions are all on one or multiple terminals.

Note that certain applications will have to be given preferential treatment with respect to delay in order to satisfy QoS requirements, e.g. VoIP.

This requirement applies to a FDD 2 X 1.25 MHz or TDD 2.5 MHz system. This parameter should scale linearly with system bandwidth if the same application mixes are assumed."

Option 3

“The MAC Layer should be able to control > 100 simultaneous active sessions per sector. An active session is a time duration during which a user can receive and/or transmit data with potentially a short delay (i.e. in the absence of service level constraints such as delays caused by the needs to satisfy QoS commitments to other users). In this state the user should have a radio bearer channel available with a delay of less than 100 ms. This requirement shall be met regardless of whether the sessions are all on one or multiple terminals.

Note that certain applications will have to be given preferential treatment with respect to delay in order to satisfy QoS requirements, e.g. VoIP.

This requirement applies to a FDD 2 X 1.25 MHz or TDD 2.5 MHz system. This parameter should scale linearly with system bandwidth if the same application mixes are assumed.”

After considerable discussion, the Chair requested to conduct a straw poll on the various proposed options.

Straw Poll

In favor of Option 1

Yes: 18
No: 3

In favor of Option 2

Yes: 25
No: 7

In favor of Option 3

Yes: 6
No: 13

Chair proposed another straw poll to choose between Options 1 & 2

Straw Poll

Favor of Option 1: 16
Favor of Option 2: 37

Discussion continued. Another option 2B was proposed.

Option 2B

“The MAC Layer should be able to control > 75 simultaneous active sessions per sector. An active session is a time duration during which a user can receive and/or transmit data with potentially a short delay (i.e. in the absence of service level constraints such as delays caused by the needs to satisfy QoS commitments to other users). In this state the user should have a radio bearer channel available with a delay of less than 25 ms with a probability of at least 0.9. This requirement shall be met regardless of whether the sessions are all on one or multiple terminals.

Note that certain applications will have to be given preferential treatment with respect to delay in order to satisfy QoS requirements, e.g. VoIP.

This requirement applies to a FDD 2 X 1.25 MHz or TDD 2.5 MHz system. This parameter should scale linearly with system bandwidth if the same application mixes are assumed.”

Straw Poll

In favor of Option 2B: 15
In favor of Option 2: 36

Motion#12

Move to adopt Option 2
Mover: Dan Gal
Second: Gang Wu

Results:

Yes: 42
No: 13
Abstain: 1

Time: 12:00 pm

Motion passes by a vote of 76.36%

Lunch Break: 12:05 pm
Resume: 1:15 pm

Review of Section 4.1.11 (Network Security) and its sub-sections

The requirements editor reviewed all the reply comments on Section 4.1.11.

Discussion followed

Reply comments were reviewed for Section 4.1.11.1
Chair requested for comments
Discussion followed

Reply comments were reviewed for Section 4.1.11.2
Following that, there was a brief discussion

Reply comments were reviewed for Section 4.1.11.3
Discussion followed

Reply comments were reviewed for Section 4.1.11.4
A brief discussion followed.

Break: 3:06 pm
Resume: 3:35 pm

Review of Section 4.1.11.5

Comments were made. There was a brief discussion.

There seems to be no consensus on any of the subsections.

Chair deferred to resume the discussion for 10:00 am tomorrow.

Review of New Section 4.1.6 (Peak Data Rates)

Discussion followed. Multiple options were raised. Chair proposed a straw poll on various options.

Straw Poll

Favor of Option 1A: 43
Favor of Option 1B: 8
Favor of Option 2: 7

The following is the text of Option 1A

"The AI shall support peak per-user data rates in excess of the values shown in Table 4-3. These peak data rate targets are independent of channel conditions, traffic loading, and system architecture."

Parameter	**Bandwidth**			
	1.25 MHz		**5 MHz**	
	Downlink	**Uplink**	**Downlink**	**Uplink**
Peak User Data Rate	**4.5 Mbps**	**2.25 Mbps**	**18 Mbps**	**9 Mbps**

Table 4-3

Motion#13

Move to adopt Option 1A:

Mover: Eshwar Pittampalli
Second: Mark Klerer

Results:

Yes: 45
No: 6
Abstain: 1

Time: 4:29 pm
Motion passes with 88% vote.

Review of Section 3.1 (System Architecture)

Discussion followed.

The following New Text was proposed for Section 3.1:

"802.20 systems are intended to provide ubiquitous mobile broadband wireless access in a cellular architecture (e.g. macro/micro/pico cells). The 802.20 system shall support non-line of sight outdoor to indoor scenarios and indoor coverage.

Current Figure 3.1

Text at end of 3.1

The AI supports a layered architecture and separation of functionality between user, data and control. The AI shall support the efficient delivery of bi-directional packetized IP traffic with packet lengths and packet train temporal behavior consistent with that of wired IP networks. The 802.20 AI is designed to support high-speed mobility"

Motion#14

Move to adopt Section 3.1 by unanimous consent with no objections

No objections

Time: 5:03 pm
Motion passes

Review of Section 3.1.1 (MBWA System Reference Architecture)

The editor reviewed all the comments made on this section.
Based on the reply comments, the following text was draft for section 3.1.1

New Text:

802.20 MBWA systems will be specified using a layered architecture. The 802.20 standards in conjunction with other applicable 802.20 standards will specify the services to be delivered by layers 1 and 2 to an IP based layer 3 or a switching layer, e.g.., PPP, MPLS. To facilitate a layered approach, the 802.20 specification shall incorporate a reference model consisting of Layers 1 and 2. This layered approach should be consistent with other IEEE 802 standards and should remain within the scope of other IEEE 802 standards as shown in figures 1 & 2. The 802.20 standard addresses the needs of logical link control and how and when the 802.2 LLC functionality is used. The 802.20 standards include PHY and MAC layer specifications with a well-defined service interface between the PHY and MAC layer. To provide the best possible performance, the MAC layer design may be optimized for the specific characteristics the air interface PHY. Figure 2 shows the relationship of various 802 PH and MAC layer standards to other 802 architectural components. The 802.20 standards shall specify how 802.20 fits into this architecture

Discussion followed.

Chair decided to discuss this further tomorrow.

Time: 5:31 pm

Chair proposed some changes to the working agenda for Thursday to allow for more time to resolve the reply comments on the requirements document.

Discussion followed.

Chair requested for an Ad-hoc group to resolve the editorial comments on the entire Requirements document. Chair requested the Ad-hoc group to meet between 8:30 pm to 11:00 pm

Time: 5:55 pm

Meeting recessed for the day.

Thursday, July 14, 2004

Meeting began at 7:00 am.

Chair presented a modified agenda. Chair requested for comments. Based on inputs from the group, chair made further modifications to the working agenda.

Motion #15

Motion to approve the modified agenda (**Appendix D**)

Mover: Eshwar Pittampalli
Second: Rashmi Bajaj

Results:

Yes: 27
No: 1
Abstain: 0

Time: 7:47 am
Motion passes

Review of 4.4.1(Quality of Service and the MAC) and 4.1.7 (QoS)

Motion #16

Move to adopt 4.4.1 and 4.1.7

Mover: Eshwar Pittampalli
Second: Rashmi Bajaj

Results
Yes: 44
No: 0
Abstain: 1

Time: 8:30 am
Motion passes

Review of Section 4.7 (User State Transition)

Review of Section 4.8 (Resource Allocation)

Motion #17

Move to adopt sections 4.6 (Scheduler) & 4.7 and delete section 4.8

Mover: Joanne Wilson

Second: Eshwar Pittampalli
Results:

Yes: 41
No: 0
Abstain: 1

Time: 8:50 am
Motion Passes

Review of Section 4.5.2 (802.1 Q tagging)

Discussion followed

Motion #18

Move to delete section 4.5.2

Mover: Joanne Wilson
Second: Eshwar Pittampalli

Results:

Yes: 41
No: 0
Abstain: 0

Time: 8:58 am
Motion passes

Review of Section 4.2 (PHY/RF)
Review of Section 4.2.1 (Receiver Sensitivity)

Review of Section 4.2.2 (Link Adaptation & Power Control)
There are currently three options for consideration. Chair conducted a straw poll.

Straw Poll

In favor of Option 1: 0
In favor of Option 2: 20
In favor of Option 3: 13

Discussion followed. A fourth option was worked out and was requested for consideration. Chair asked for a straw poll

Straw Poll

In favor of Option 4: 42

No objections were raised to delete Options 1 to 3

Motion #19

Motion to adopt new text, as shown in the meeting, on section 4.2.2 Link Adaptation and Power Control

Mover: Doug Knisely
Second: Gang Wu

Results:

Yes: 50
No: 0
Abstain: 0

Time: 9:57 am
Motion Passes

Review of Section 4.2.4 (Duplexing – FDD & TDD)

It was proposed to delete Section 4.2.4

No objections were raised. Section 4.2.4 is deleted

Review of Section 4.2.5 (Synchronization)

Discussion followed

Break: 10:15 am
Resume: 10:30 am

Three options are under consideration. Chair asked for a straw poll.

Straw Poll

In favor of Option 1: 27
In favor of Option 2: 1
In favor of Option 3: 40

Motion #20

Move to adopt option 3, as shown in the meeting.

Mover: Joanne Wilson
Second: Rashmi Bajaj

Results:

Yes: 46
No: 0
Abstain: 0

Time: 11:04 am
Motion passes

Resume review of section 4.2.6 (Measurements)

Discussion followed.
Chair ordered to defer the discussion to PM1 session

Resume review section 2.2 (Broadcast/Multicast Support)

The following options were considered for text for section 2.2

Option 4: Current Text
Option 2: IEEE 802.20-based systems shall support broadcast and multicast services using mechanisms that make efficient use of spectrum and system resources.
Option 3: IEEE 802.20-based systems shall support broadcast and multicast services, and should use mechanisms that make efficient use of spectrum and system resources.

Chair conducted a Straw Poll.

Straw Poll

In favor of Option 4: 11
In favor of Option 2: 23
In favor of Option 3: 8

Doug Knisely withdrew his comment #111

Motion #21

Move to adopt Option 2 as text for Section 2.2

Mover: Jim Tomcik
Second: Jim Ragsdale

Yes: 35
No: 9
Abstain: 0

Time: 12:07 pm
Motion Passes

Doug Knisely offered the following definitions of Broadcast and Multicast Services:

Broadcast Service: The ability to transmit a packet of information (e.g., an IP broadcast datagram) to all mobile terminals within a geographical area. Note that a particular mobile terminal may choose to receive r ignore individual information packets that are delivered via the broadcast service

Note: This term should not be confused with term “broadcasting service” as defined in the ITU Radio Regulators.

Multicast Service: The ability to transmit a packet of information (e.g., an IP multicast datagram) to a subset of all mobile terminals within a geographical area. The multicast target for a multicast information packet is identified by a multicast address. Each mobile terminal can choose to receive multicast information packets based on the desired multicast address (es).

Motion #22

Move to adopt above definitions

Mover: Joanne Wilson
Second: Rashmi Bajaj

Results:

Yes: 45
No: 0
Abstain: 0

Time: 12:25 am
Motion passes

Lunch Break: 12:20

Till: 1:15 pm.

Review of Sections 4.1.3 (Duplexing) and 4.1.4 (Mobility)

Motion #23

Move to adopt Section 4.1.4

Proposed text for Section 4.1.4:

“The AI shall support different modes of mobility from pedestrian (3 km/hr) to high vehicular speeds (250 km/hr). “

Mover: Joanne Wilson
Second: Mark Klerer

Discussion followed

Friendly Amendment by Alfred Wieczorek
Accepted

Proposed text for Section 4.1.4 with the acceptance of above friendly amendment:

"The AI shall support different rates of mobility from pedestrian (3 km/hr) to high vehicular speeds (250 km/hr)."

Friendly Amendment by Anna Tee
Rejected

Motion on the floor

Results:

Yes: 44
No: 0
Abstain: 1

Time: 1:40 pm
Motion Passes

Review of Section 4.2.6 (Measurements)

A brief discussion followed. Following options were proposed as text for Section 4.2.6:

Option 1:

The AI shall support measurements in the physical layer of both the base station and the mobile terminal. These physical layer measurements should include: signal strength, signal quality (C/I), error rates, access delays, session interruption, effective throughput (good-put), neighboring cells' signals and provide any other measurement needed for handoff support, maintenance and quality of service monitoring. Some of these measurements should be reported to the opposite side of the air link on a periodic basis, and/or upon request.

Option 2:

Delete the text

Straw Poll:

In favor of Option 1: 37
In favor of Option 2: 6

Motion #24

Move to adopt option 1

Mover: Dan Gal
Second: Anna Tee

Friendly amendment by Jim Ragsdale
To remove the work (good-put)
Accepted

Results:
Yes: 39
No: 5
Abstain: 0

Time: 1:56 pm
Motion Passes

Motion #25

Move to adopt the following text for Section 4.1.3 (Duplexing)

The AI shall support both Frequency Division Duplexing (FDD) and Time Division Duplexing (TDD). The AI should support a Half Duplex FDD subscriber station

Mover: Arak Sutivong
Second: Mark Klerer

Results:

Yes: 46
No: 0
Abstain: 1

Time: 2:16pm
Motion Passes

Review of Section 4.2.5 (Synchronization)

Motion #26

Move to adopt Section 4.2.5, as shown in the meeting.

Mover: Mark Klerer
Second: Rashmi Bajaj

Results:

Yes: 47
No: 0
Abstain: 2

Time: 2:31 pm
Motion passes

Review of Section 4.1.8 (Support for Multi Antenna Capabilities)

Option 1:
The AI Shall support advanced antenna techniques, at the base station and/or mobile terminal, so as to higher effective data rates, user capacity, cell sizes and reliability.

Option 2
The 802.20 standard shall include MAC/PHY features to support multi-antenna capabilities at the BS and optionally at the MT.

Option 3:
The 802.20 standard shall include MAC/PHY features to support multi-antenna capabilities at both the BS and at the MT.

Straw Poll:

In favor of Option 1: 6
In favor of Option 2: 41
In favor of Option 3: 10

Motion #27

Move to adopt Option 2

Mover: Mark Klerer
Second: Lynne Dorward

Results:

Yes: 45
No: 5
Abstain: 0

Time: 2:55 pm
Motion Passes

Break: 2:55 pm
Resume: 3: 19 pm

Review of Section 4.1.9 (Antenna Diversity)
Motion #28

Move to adopt the following text for section 4.1.9

"The base station should provide antenna diversity, which may be an integral part of an advanced antenna solution. The standard shall neither require nor preclude the use of antenna diversity at the mobile stations."

Mover: Joanne Wilson
Second: Mark Klerer

Results:

Yes: 44
No: 1
Abstain: 0

Time: 3: 25 pm
Motion Passes

Motion #29

Move to adopt the following text for Section 4.1.10 (Support for the Use of Coverage Enhancing Technologies)

"The system shall support the use of coverage enhancing technologies"

Mover: Mark Klerer
Second: Jim Tomcik

Results
Yes: 43
No: 1
Abstain: 0

Time: 3: 27 pm
Motion passes

Chair presented the response received from the 802.16e chair on the motions brought over by the 802.20 WG on Monday July 12, 2004.

Mark Klerer presented the historical perspectives and objectives behind the creation of IEEE 802.16e and 802.20 WGs

Motion #30

Reaffirmation Vote on 802.16e Proposed PAR Amendment (Directed Position)

Motion: After review of the response from the 802.16 Working Group the 802.20 Working Group re-affirms this previous motion.
The 802.20 Working Group Directs the Chair of 802.20 to vote "No" in the Executive Committee regarding the approval of the proposed 802.16e PAR. The Group recommends the 802 Executive Committee not approve the 802.16e PAR.

Mover: Dan Gal
Second: Mark Klerer
Results:

Yes: 51
No: 1
Abstain: 3

Time: 3:54 pm
Motion passes

Motion #31

Reaffirmation Vote on 802.16g Proposed PAR Amendment
"Directed Position"

Motion: Motion: After review of the response from the 802.16 Working Group the 802.20 Working Group re-affirms this previous motion.

The 802.20 Working Group Directs the Chair of 802.20 to vote "No" in the Executive Committee regarding the approval of the proposed 802.16g PAR. The group recommends the 802 Executive Committee not approve the 802.16g PAR.

Unless new PAR does not state work for .16e.

Mover: Mark Klerer
Second: Dan Gal

Results:

Yes: 48
No: 0
Abstain: 4

Time: 4:05 pm
Motion passes

Dan Gal presented the following definition for "Coverage Enhancing Technologies"

"In this context of wireless communications – technologies that augment the radio signal in areas within the boundary of a cell, where the BS/MS transmit signal is obstructed and significantly attenuated by terrain or man-made structures.

Such technologies employ devices such as repeaters and relays that rely on the BS for backhaul communications.

The term Repeater typically refers to an analog device that amplifies and retransmits the original transmission (without frequency translation). A Relay (analog or digital) typically retransmits the received signal in another frequency. A digital relay (or regenerator) decodes the information from the received signal, regenerates and retransmits it. In the case of packet communications, relays may also perform Layer-3 functions."

Straw Poll

In favor of first sentence only as text for "Coverage Enhancing Technologies": 42
In favor of the whole text: 3

Motion #32

Move to adopt the following for the definition of "Coverage Enhancing Technologies"

"In this context of wireless communications – technologies that augment the radio signal in areas within the boundary of a cell, where the BS/MS transmit signal is obstructed and significantly attenuated by terrain or man-made structures."

Move: Joanne Wilson
Second: Ayman Naguib

Friendly amendment by Alfred Wieczorek
Rejected

Results:

Yes: 49
No: 0
No: 0

Time: 4:17 pm
Motion passes

Review of section 4.5.3 (CPE Software/Upgrade "push")

Motion #33

Motion to approve the deletion of section 4.5.3

Mover: Doug Knisely
Second: Mark Klerer

Results:

Yes: 51
No: 0
No: 0

Time: 4: 21 pm
Motion Passes

Review of Section 3.1.1 (MBWA Systems Reference Architecture)

Option 1: The current text as is in version 13
Option 2: Add the following at the end of the text:

"and may provide additional architectural detail layering."

Option 3: Add the following at the end of the text

"If more than one PHY technology is adopted for the 802.20 standard, the MAC layer should be designed such that it consists of two parts: a common part and a PHY-specific part. To provide the best possible performance, the PHY-specific part of the MAC may be optimized for the specific characteristics of a particular PHY"

Straw Poll

In favor of Option 1: 7
In favor of Option 2: 6
In favor of Option 3: 37

Motion#34

Move to adopt Option 2

Mover: Dan Gal
Second: Gang Wu

Results:
Yes: 39
No: 8
Abstain: 0

Time: 4:30 pm
Motion passes

Review of Section 4.3 (Spectral Requirements)

The 802.20 AI shall support system implementation in TDD or FDD licensed spectrum below 3.5 GHz and allocated to the Mobile Service. The MBWA system frequency plan shall include both paired and unpaired channel plans with multiple bandwidths, e.g., 1.25 or 5 MHz, etc., to allow co-deployment with existing cellular systems. Channel bandwidths are consistent with frequency plans and frequency allocations for other wide-area systems

The design shall be readily extensible to wider channels as they become available in the future.

Motion #35

Move to adopt the above text for Section 4.3

Move: Mark Klerer
Second: Gang Wu

Results
Yes: 47
No: 0
No: 0

Time: 4:45 pm
Motion Passes

Review of Section 4.1.12 (Network Security – 4.1.11 in version 13)

Motion #36

Move to adopt the section 4.1.12, as shown in the meeting

Mover: Jim Tomcik
Second: Dan Gal

Friendly Amendment by Doug Knisely to add the following sentence to top of Section 4.1.11.5

AES shall be the mandatory and the default underlying algorithm for encryption.

Discussion:

Gang Wu calls the question
Objections raised by Joanne Wilson

Vote on question
Results:

Yes: 46
No: 6
Abstain: 0

Point of order by Joanne Wilson
Rejected by the Chair

Vote on Motion

Results:

Yes: 43
No: 7
Abstain: 1

Time: 5:13 pm
Motion Passes

Review of Section 2.1 (Voice Services)

There are no comments on the current text of this section.

Review of Section 4.1.1 (System Spectral Efficiency, previously approved by the WG)

Motion #37

Move to amend the table in Section 4.1.1 to reflect spectral efficiency of 1.0 b/s/Hz/sector for downlink and 0.75 b/s/Hz/sector for uplink irrespective of the vehicular speed

Mover: Mark Klerer
Second: Joanne Wilson

Discussion followed

Call into question
No objections

Motion on floor
Results:

Yes: 8
No: 39

Time: 5:31 pm
Motion Fails

Chair requested comments and other items for the group.

Motion #38

Move to create a standard Ad-Hoc Security Group to provide security expertise to address security issues for the 802.20 working group, to have a liaison relationship with 802.1a and further refine 802.20 security requirements.

Mover: Joanne Wilson
Second: Henry Eilts

Question called
No objections

Results:

Yes: 11
No: 13
Abstain: 2

Motion fails

Motion #39

Move to approve the overall Systems Requirements Document (as reviewed and approved by section by the WG)

Mover: Mark Klerer
Second: Jim Klerer

Discussion followed

Question called
No objections

Results:
Yes: 42
No: 1
Abstain: 5

Time: 5:45pm
Motion Passes

Discussion regarding approving a Work Plan and Project Schedule

Presentation by Mark Klerer on "Work Plan and Project Schedule" (C802.20-04/57)

Presentation by Gang Wu on "Work Plan and Project Schedule (C802.20-04/59)"

Discussion followed

Motion # 40

Motion to adopt Work Plan and Project Schedule (C802.20-04/59)

Move: Farrokh Khatibi
Second: Mike Youssefmir

Friendly amendment by Doug Knisely Rejected

Friendly amendment by Mark Klerer

Rejected
Motion on the floor:
Question Called

Results

Yes: 36
No: 6
Abstain: 3

Time: 6:00 pm
Motion passes

Motion # 41

Move to adjourn

Mover: Farrokh Khatibi
Second: Dan Gal

No objections
Motion passes
Time: 6:05 pm

Session #9 is adjourned

Appendix A Attendee List of 802.20 Session #9 Plenary Meeting

Last Name	First Name	Affiliation	Status
Ahn	Jae-Young	ETRI	Y
Ananthaswamy	Ganesh	Analog Devices	N
Baek	SeungKwon	ETRI	N
Bajaj	Rashmi	France Telecom R&D	Y
Bernstein	Jeffrey	TMG Telecom	Y
Brooks	David	Intel	N
Bussey	Chris	Bussey Consulting	Y
Canchi	Radhakrishna	Kyocera	Y
Carneiro	Edson	Edmais Computer	Y
Chickneas	Jim	Consultant	Y
Chindapol	Aik	Siemens	Y
Cho	Juphil	ETRI	Y
Chun	Jin-Young	LGE	N
Cleveland	Joseph	Samsung	Y
Davis	Chantal	Industry Canada	N
Dennett	Steve	Nextel	N
Dorward	Lynne	LADCOMM	Y
Eilts	Henry	TI	Y
Epstein	Mark	Qualcomm	Y
Feigin	Jeff	Skyworks	N
Gal	Dan	Lucent	Y
Gomes	Eladio	Double E Enterprises	Y
Gorodetsky	Svetlana	Gorodetsky Consulting	Y
Guo	Qiang	Motorola	Y
Hafid	Abdel	Telcordia	N
Han	Youngnam	ICU	Y
Hermodsson	Frans	TeliaSonera	N
Hou	Victor	Broadcom	Y
Huo	David	Lucent	Y
Hwang	Ho-Tark	KT	Y
Ibbetson	Luke	Vodafone	Y
Ihm	Bin-Chul	LGE	N
Imamura	Daichi	Panasonic	Y
jin	jay	LGE	Y
Jones	Dennis	CTCI	Y
Khademi	Majid	Khademi Consulting	Y
Khan	Farooq	Lucent	Y
Khatibi	Farrokh	Qualcomm	Y
Kim	JaeHeung	ETRI	Y
Kim	Jeonghwi	KT	Y
Kim	Nak Myeong	Ewha Womens University	Y
Kim	Yongbum	KT	Y
Kim	Min Sung	KT	Y
Kitamura	Takuya	Fujitsu	Y
Klerer	Mark	Flarion	Y
Knisely	Douglas	Lucent	Y
Knowles	Skip	Bussey Consulting	Y
Kohno	Ryuji	NICT	N

Kotecha	Lalit	BeamReach Networks	Y
Kroninger	Robert	ADC	N
Kuo	Chien-Yu	Battery	N
Kuroda	Masahiro	NICT	N
Lalaguna	Pablo	MedStar Systems	Y
Lawrence	Lisa	CTCI	Y
Lee	Kyoung Seok	ETRI	Y
Lee	Heesoo	ETRI	Y
Lee	Seong-Choon	KT	Y
Lycklama	Heinz	OSTA	N
Martynov	Irina	Belgud	Y
Martynov	Michael	Belgud	Y
McMillan	Donald	Advanced Network Technical	Y
Migaldi	Scott	Motorola	Y
Miura	Akira	Independant	N
Miyazono	Max	Qualcomm	Y
Mollenauer	James	Technical Strategy Associates	Y
Murakami	Kazuhiro	Kyocera	Y
Naguib	Ayman	Qualcomm	Y
Naidu	Mullaguru	Qualcomm	Y
Ng	Put	Rogers Wireless	Y
Nishio	Akihiko	Panasonic	Y
O'Brien	Francis	Lucent	Y
Odlyzko	Paul	Motorola	Y
Oh	Minseok	Kyonggi University	N
Paek	Inkyu	Hanaro	Y
Park	Young Man	KT	Y
Park	PS	Hanaro	Y
Pirhonen	Riku	Nokia	Y
Pittampalli	Eshwar	Lucent	Y
Poisson	Sebastien	Oasis Wireless	Y
Prakash	Rajat	Qualcomm	Y
Pulcini	Greg	Bussey Consulting	Y
Qu	Bingyu	Huawei	Y
Ragsdale	James	Ericsson	Y
Ruck	Herbert	Ruck Research	Y
Sanchez	Maria	BT	N
Scalise	Fabio	STMicroelectronics	N
Shields	Judith	LADCOMM Corporation	Y
Shively	David	Cingular	Y
Springer	Warren	Springer Associates	Y
Staver	Doug		Y
Stone	Mike	Independant	Y
Sutivong	Arak	Qualcomm	Y
Tamaki	Satoshi	Hitachi	N
Tcha	Yongjoo	KT	Y
Tee	Lai-King Anna	Samsung	Y
Tomcik	James	Qualcomm	Y
Trick	John	Bussey Consulting	Y
Tsui	Daniel	Inter Digital	Y
Upton	Jerry	Jerry Upton Consulting	Y

Valls	Juan Carlos	TMG Telecom	Y
Vivanco	Silvia	TMG Telecom	Y
Wasilewski	Tom	Qualcomm	Y
Wieczorek	Alfred	Motorola	Y
Wilson	Joanne	Arraycomm	Y
Wu	Gang	DoCoMo USA Labs	Y
Xin	W. Michael	Battery	Y
Yaghoobi	Hassan	Intel	Y
Yallapragada	Rao	Qualcomm	Y
Youssefmir	Mike	Arraycomm	Y
Yuza	Masaaki	NEC	Y

Appendix B: Approved Working Agenda on July 12, 2004

1.1 Appendix B: Proposed Detail Agenda – July 2004 Plenary		
Monday, July 12, 2004 11:00AM – 12:00PM Grand Ballroom Hilton		
IEEE 802 Opening Plenary		
Monday, July 12, 2004 1:30PM - 3:30PM Grand Ballroom H		
Joint Opening 802.11/15/16/18/19/20/21 IEEE IPR rules and meeting conduct Logistics for the session Proposed 802.20 Agenda	1:30pm- 3:30pm	
Monday, July 12, 2004 4:00PM –5:30PM Galleria North Hilton		
Opening Session of 802.20 - Voting Tokens - Approval of Agenda including modifications - Review and approve March & May Minutes - Other Session Logistics Review Other WGs Activities Liaison Plan Update (Eshwar Pittampalli)	4:00pm - 4:30pm 4:30pm -5:00pm 5:00pm –5:30pm	
Monday, July 12, 2004 7:00PM - 9:00PM (optional Ad-Hocs) & 802 Tutorials		
Tuesday, July 13, 2004 8:00AM - 12:00PM (Break 10:00 – 10:30AM) Galleria North		
Requirements Status & Process for Closure Functional Reqs. For 802.20 Security (Sarvar Patel) Moving Forward on 802.20 Security (Florent Bersani) Requirements Comment Resolution & Voting	8:00am – 9:00am 9:00am – 10:00am 10:30am–11:00am 11:00am- 12:00pm	
Tuesday, July 13, 2004 1:00PM – 5:30PM (Break 3:30 – 4:00PM) Galleria North		
- Requirements Comment Resolution and Voting continued - Review of Proposed Topics for Ad-Hocs	1:00pm – 5:30pm	
Tuesday, July 13, 2004 7:30PM - 9:00PM (optional Ad-Hocs)		
Wednesday, July 14, 2004 8:00AM - 12:00PM (Break 10:00 – 10:30AM) Galleria North		
- Requirements Comments Resolution and Voting continued	8:00am - 12:00pm	
Wednesday, July 14, 2004 1:00PM - 5:30PM (Break 3:30 – 4:00PM)		

- Requirements Comments Resolution and Voting continued Requirements Closure and Next Steps 820 Social Reception	1:00pm- 4:30pm 4:30pm – 5:30pm 6:30pm – 9:00pm	
Thursday, July 15, 2004 8:00AM - 12:00PM (Break 10:00 – 10:30AM) Galleria North		
Channel Models(Qiang Guo) - Update on "Outstanding List" Proposal for RF Evaluation Criteria (Dan Gal) Evaluation Criteria & Traffic Models Status (Farooq K.)	8:00am – 9:00am 9:00am – 10:00am 10:30am- 12:00pm	
Thursday, July 15, 2004 1:00PM - 5:00PM (Break 3:30 – 4:00PM) Galleria North		
Review 802.18 Regulatory Output (Chair of .18) Work Plan & Project Schedule New Business Next Meeting Planning Close and Adjourn	1:00pm- 1:45pm 1:45pm- 3:00pm 3:30pm- 4:00pm 4:00pm- 4:30pm 4:30pm – 5:00pm	

Appendix C: Justification for 802.18 SG PAR

1. Regional Area Network Application
   Fixed point to multipoint
   Range to exceed metropolitan area link distances/coverage areas

2. Intended to reuse VHF/UHF TV Allocations on an unlicensed, non-interfering basis as per recent FCC NPRM and ongoing work in ITU-R and other international regulatory bodies.
   - Requires a new policy driven media access control mechanism using cognitive radio techniques to ensure dynamic operation on a non-interfering basis in both frequency & time. The primary goal of the dynamically self-adapting media access control is to ensure operation on a non-interfering basis at the expense of QoS and throughput.
   - Requires a new, PHY with exceptional frequency agility and measurement capabilities to support the policy engine's adaptive, cognitive interference prevention functionality.

3. Intent to work closely and cooperatively with the commercial broadcast industry
   We already have active participation from Fox and MSTV

4. Global regulatory requirement for guaranteed non-interference requires interoperable MAC/PHY policy engine functionality

5. Cognitive radio techniques allow varying in real-time of any or all these 5 parameters in order to take optimal advantage of spectral white space
   - Power Control
   - Frequency Control
   - Modulation Control
   - Error Correction Control
   - Time

802.16 Primary Goal
   Operate at highest possible throughput with guaranteed QoS

PAR Primary Goal
   Operate on a non-interfering basis & opportunistically scavenge spectrum that would otherwise lie fallow

Appendix D: Modified Working Agenda on July 16, 2004

802.20 Proposed Detailed Meeting Agenda Modified & approved 7/15

Wednesday, July 14, 2004 8:00AM - 12:00PM (Break 10:00 – 10:30AM) Galleria North		
Requirements Comments Resolution and Voting continued	8:00am - 12:00pm	
Wednesday, July 14, 2004 1:00PM - 5:30PM (Break 3:30 – 4:00PM) Galleria North		
Requirements Comments Resolution and Voting continued Requirements Closure and Next Steps	1:00pm - 4:30pm 4:30pm - 5:30pm	
Wednesday, July 14, 2004 6:30PM - 9:00 PM		
802 Social Reception		
Thursday, July 15, 2004 8:00AM - 12:00PM (Break 10:00 – 10:30AM) Galleria North		
Requirements Comments Resolution and Voting continued		
Thursday, July 15, 2004 1:00PM - 5:00PM (Break 3:30 – 4:00PM) Galleria North		
Requirements Comments Resolution and Voting continued Requirements Closure and Next Steps Work Plan & Schedule, Next meeting & Close and Adjourn	4:30pm - 5:00pm	