

Project	IEEE 802.20 Working Group on Mobile Broadband Wireless Access < http://grouper.ieee.org/groups/802/20/ >	
Title	Draft Meeting Minutes, 802.20 Interim Meeting - Session #27, Atlanta, Georgia, USA, November 12-15, 2007.	
Date Submitted		
Source(s)	Don Gillies, as acting Recording Secretary for the session QUALCOMM, Incorporated 5775 Morehouse Drive San Diego, CA, 92121	Email: dgillies@qualcomm.com
Re:	802.20 Session#27	
Abstract	Draft of the Minutes of the Session #27.	
Purpose	Minutes of the Session.	
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**IEEE 802.20 Meeting Notes
Atlanta, Georgia
November 12-14, 2007**

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3
4
5 Arnie Greenspan, 802.20 Chair
6 Mark Klerer, Vice-Chair
7 Jim Mollenauer, Vice-Chair
8 Don Gillies, Recording Secretary
9

10 **Monday November 12, 2007**

11 =====
12 The PM1 Session began at 1:30 P.M.

13
14 The chair put up the IEEE Patent Policy Slides and read aloud slides #1, #2, #3, #4 and #5.

15
16 The chair asked everyone to introduce themselves and state their affiliations. Attendance was
17 roughly 27 persons.

18
19 The chair stated that at the last couple of meetings there were patent statements from Qualcomm
20 and Kyocera. The chair believes that such statements must be read at every meeting.

21
22 Jim Tomcik, We have actually sent a request for clarification on whether this is required or not,
23 until we get a clarification we must repeat our declaration.

24
25 Jim Tomcik, "Qualcomm may have intellectual property underlying a contribution that, if adopted,
26 could be essential to the practice of the standard. If we do we will timely comply with all IEEE
27 requirements regarding IPR and disclosure. Qualcomm has filed a letter of assurance and it is
28 posted to the IEEE website."

29
30 Radhakrishna Canchi, Kyocera, "Kyocera Corp. may have IPR (Intellectual Property Rights)
31 related their proposal to IEEE 802.20 Project that, if adopted, could be essential to the practice of
32 Standard. Kyocera will comply with IEEE patent policy."

33
34 **Motion**, to approve the agenda posted to the website?

35 Nancy Bravin, so moved.

36 Radhakrishna Canchi, seconded.

37
38 Discussion ensued. Question: if we finish everything does the agenda move up? Yes, said the
39 chair.

40
41 **Vote**, With no objections to the agenda, the agenda was approved by affirmation.

42
43 The chair reminded everyone to sign in using the IEEE registration server.

44
45 The chair turned towards approval of the minutes from Kona. There are four suggested changes
46 from Broadcom. Three of the suggested changes are perfectly acceptable, but the chair has
47 objections to the fourth suggested change because it includes side conversations that did not
48 occur in the actual Kona meeting. After a short period of discussion, approval of minutes was
49 deferred until the chair and Broadcom could reach agreement.
50

1 A revised 802.20 specification development plan has been posted to the 802 website. The chair
2 requested a motion to approve.

3
4 **Motion**, to approve the 802.20 Development plan
5 Jerry Upton, so moved.
6 Radhakrishna Canchi, seconded.

7
8 A questioner from the floor asked if we could do the original ballot and recirculation all in
9 December. The chair stated that this was highly optimistic. A second comment from the floor
10 stated that a recirculation would probably be pushed out to February because comment resolution
11 could not be done until the Taipei meeting.

12
13 The Vice-Chair made edits to the proposed development plan, i.e. Sponsor Ballot starts November,
14 and ends in January, Recirculation in January/February, with IEEE RevCom conditional
15 submission in February 2008 and expected approval in March of 2008.

16
17 The chair would like to accept this new development plan by acclamation?

18
19 **Vote**, There were no objections. The new development plan is accepted.

20
21 The chair put up his opening slides, and stated that we are quite close to moving to a sponsor
22 ballot. For those who have fought to make this work a standard, the chair thanks you. For those
23 who have been positive and supportive, your hard work and efforts are on the brink of approval.

24
25 The result of voting on the recirculation ballot was
26 approval rate 86.67%
27 abstention rate, 28.57%
28 response rate, 72.41%

29
30 The chair will follow the path laid out by the rules, on what constitutes a proper comment, a
31 deadline, and a voter. If any member of this working group says they don't care what the rules are
32 and they will do what they please, the chair will make an effort to have the EC remove the member
33 from 802.20.

34
35 Dr. Radhakrishna Canchi has offered to be the liaison between 802.20 and ARIB, and we are very
36 pleased that he will represent 802.20 to ARIB.

37
38 The chair stated we have exactly 251 comments that we received as a result of this recirculation,
39 181 are editorial. In light of the work we did in Hawaii and the amount of comments we processed
40 in Hawaii, we believe that we can resolve all comments this week.

41
42 In response to a question from the floor, the chair stated that there were no issues of timely
43 submission of ballots this time.

44
45 The chair then handed the floor over to the editorial vice-chair.

46
47 The editorial vice-chair has produced an initial set of comments that he would like to accept
48 (mostly editorial), along with a proposed immediate revision of the draft specification. Both sets
49 are on the 802.20 web site. Editorial comments are in dark green. The chair's goal is to have a
50 revised draft immediately at the end of this meeting.

51

1 The editorial chair has a color classification system that is listed on the "color codes" page of the
 2 spreadsheet. The editorial chair asked attendees to review the dark green immediate accepts and
 3 asked, "Can we vote Tuesday after the afternoon coffee break?" After some questions from the
 4 floor, this approval process was moved to Wednesday morning.

5
 6 With no further questions, we will proceed to comment resolution, with a goal of having an updated
 7 draft at the end of the session. In our website draft all previous changes have been accepted, and
 8 new proposed comments for acceptance are shown with diff-marks.

9
 10 We will now start comment resolution in sequence. We have only about 50 technical comments to
 11 resolve.

12
 13 It was requested from the floor that we consider the light greens, so all but the dark green
 14 comments will be considered at the floor. The vice-chair agreed to this process.

15
 16 ===== Note from Secretary and Editorial Chair =====

17 The Secretary tries to record sequence number dispositions (paragraphs beginning with "seqno"
 18 below), partly as a backup to the vice-chair, and partly to indicate that he is paying attention, and
 19 to demonstrate that the minutes are thorough. Note that some sequence numbers are revisited
 20 several times, and the secretary does not always get everything written down. The Editorial vice-
 21 chair's LB2m spreadsheet contains the ultimate comment disposition.

22 =====

23
 24 seqno 2, the request is to put the Chapter name in the page headers. The chair has no problem
 25 but we must check with IEEE editorial staff on whether it's o.k. Resolution is, this will be accepted
 26 if the IEEE editorial staff allows it, Action item for Mark Klerer to confer with IEEE editorial staff.
 27 The result later was that it was found that Chapter headings are not allowed in IEEE standards
 28 specifications.

29
 30 seqno 3, 5, deferred.

31
 32 seqno 8, The issue was that one important sentence, explaining the origin of the term 'AN', would
 33 be lost if this sequence number was accepted. Discussion began, but was then deferred until after
 34 the break.

35
 36 The PM1 session recessed at 2:40 P.M.

37 =====
 38 The PM2 session resumed at 3:11 P.M.

39
 40 seqno 8, after conferring outside the meeting, the proposer of the change accepted the friendly
 41 amendment to keep the sentence explaining the origin of the term 'AN'.

42
 43 seqno 11, accepted.

44
 45 seqno 13, any concerns? None, accepted.

46
 47 seqno 14, IEEE convention is to capitalize terms, so the comment to decapitalize will be rejected,
 48 however "Wideband mode" will be changed to Wideband Mode in the specification to follow IEEE
 49 conventions.

50
 51 seqno 15, accepted.

1
2 seqno 23, requests that a footnote be restored; rejected but the Editor notes that the footnote has
3 already been restored in the present draft.
4

5 seqno 28, no objections, accepted.
6

7 seqno 29, no objections, accepted.
8

9 seqno 40, 41, 42, all related, concerns whether we put introductory, conditional sentences
10 between multi-format messages and attributes. After discussion on the floor, it was decided to
11 reject #40 and accept #41 and #42. the editor marked it with a special color to tell him to make
12 edits to the document tonight. There is a later comment of a similar nature that will also probably
13 be flipped.
14

15 seqno 52, the comment suggests, page 104, table #6, last row, that all other values should be "no",
16 but an objection from the floor said that these should remain as "N/A". The comment was not
17 accepted.
18

19 seqno 53, 54, at the last meeting it was said that fixed-length fields would be called "Reserved",
20 and variable length fields would be called "Padding." The result was that there would be no
21 constraint on the transmitter on what they could transmit in reserved fields. For padding fields the
22 transmitter would be required to set them to zero. In either case the receiver must ignore those
23 fields. In a later version of the protocol, the receiver can assign a value to reserved fields.
24

25 A commenter said that, in the original text it said that the reserved fields should be set to zero and
26 it should be ignored by the other protocol counterpart.
27

28 The concept of a reserved field is that it's reserved for future use. In the specification these are
29 used to octet-align message fields. But you don't want to specify anything about the fields
30 because if you do, you take away future uses for these fields. Yes, the field must be there but it
31 does not matter what the bits are.
32

33 The commenter said, traditionally when we look at signaling messages, if there is any value other
34 than zero, then that in itself dictates an action. So if the bits are set to zero it does not mean you
35 are not able to utilize the reserved fields any more. If there was another parameter added to this
36 particular message, in a particular test case the reserved bits would drop from 3 to 1. You could
37 still re-use the values if they are set to zero. There was contention on this issue.
38

39 The editorial chair said that the facts are on the table. Right now, reserved fields must be present;
40 do they need to be set to a particular value? The point was that you should allow a terminal to
41 pass a conformance test even if it is putting nonzero values in the reserved fields. Action item to
42 Collette Petersen (Alcatel Lucent) and Jim Ragsdale (Ericsson) to discuss and agree on a
43 resolution by Tuesday afternoon. On Tuesday morning, the action item was closed with the
44 withdrawal of seqno 53, 54.
45

46 seqno 56, accepted with editor's proposed changes and agreement of the submitter.
47

48 seqno 59, the editor stated that the affected text occurs on page 166. The commenter stated that
49 when the editor explained it just now a light bulb went off in his head. The editor said he will mark
50 it as withdrawn for now.
51

1 seqno 67, an editorial modification to change any field at the end of a message to "padding" has
2 been undone for fixed-length fields at the end of a message. This was a good thing, the editor
3 said, accepted.

4
5 seqno 79, similar disposition.

6
7 seqno 85, the editor asked for clarification on the comment. The comment concerns decoding of
8 Packet Consolidation Protocol messages. Initially the commenter did not understand why the
9 padding was being deleted. It turns out the confusion was that several higher-layer packets (that
10 could each have padding) were composed together by Packet Consolidation to which was added
11 additional padding, potentially. The document said that padding should be removed, but which
12 padding should be removed? It was suggested to change the text "and padding" to "and Packet
13 Consolidation padding" to clarify this issue. The comment together with the friendly amendment
14 was accepted.

15
16 seqno 105-108, accepted.

17
18 seqno 117, is actually editorial since we agreed to do this with the TDD change. The editor
19 showed the consequence of the change. This was accepted.

20
21 seqno 119, deferred.

22
23 seqno 130, 131, we will revisit this Wednesday morning.

24
25 seqno 153, 154, we will discuss these issues of minimum performance together, after we have
26 completed our first pass through the comments, deferred.

27
28 seqno 155, not accepted, no duplicate text, text is correct as it stands, "NumEffectiveAttenas
29 effective antennas".

30
31 seqno 158, 159, are also deferred until we revisit the issue of minimum performance.

32
33 seqno 163, concerning Reserved fields being set to zero, discussion is deferred pending
34 discussion between Ericsson and Alcatel-Lucent, Action item to be closed by Tuesday afternoon,
35 same disposition as 53. This action item was resolved on Tuesday morning and this seqno was
36 withdrawn.

37
38 seqno 167, the spec suggests a simplified initialization sequence when one InUse instance has
39 already been initialized. The simplified sequence is ambiguous. A suggestion from the floor was
40 to clarify that "just the following 2 bullets needed to be implemented", and the commenter asked
41 the editor to append a sentence stating that "the rest of the procedures in this subsection may be
42 omitted", and with these changes the disposition was changed to "accepted".

43
44 seqno 199, This comment suggests a global search/replace, but the editor states that the
45 search/replace should be limited to only that particular subsection, not the entire document. This
46 terminology is used in other sections to mean other things, the commenter agreed to this friendly
47 amendment from the editor, accepted.

48
49 seqno 202, 203, 204, 205, 207, 208, reserved/padding issues, all marked as accept.

50
51 seqno 211-213, similar disposition.

1
2 seqno 216, marked technical but almost editorial comments. editor recommends acceptance, no
3 objections, accepted.

4
5 seqno 217, was an editorial mistake, similar to 218, editor recommends acceptance, no objections,
6 accepted.

7
8 seqno 219, 220, 222, reserved/padding issues, all marked as accept.

9
10 seqno 225-233, reserved/padding issues, all marked as accept. The editor thanks the submitter
11 for calculating padding on some fields.

12
13 Action item to Jim Ragsdale, Jim Tomcik, and Victor Hou, page 979, resolve the Channel Band (vs.
14 Channel Band Record) issue. The issue is that many sections refer to Section 11.2.1 for
15 information on the Channel Band record, but that section is titled "Channel Record" only. It is
16 believed that the name change to "Channel Band record" is a recent one, and needs to propagate
17 to the title of 11.2.1. Also, harmonize this with 7.2.5.5 ConnectionFailureReport message (p764,
18 D3.0m-Pre-Draft), where the "ChannelRecord" field definition refers to a "Channel Record", but
19 should probably refer to a "ChannelBand record". Also, a 3rd issue is that in some places, legacy
20 32-bit field sizes persist for ChannelBand record, and these should be variable. The action item
21 was closed on the next day, when the three parties agreed to make the above 3 classes of
22 changes to the specification.

23
24 seqno 235, The comment questions the status of 137 Kona comments on Chapter 9 that were
25 withdrawn at the Kona meeting. When questioned about the issue, the entity that submitted the
26 137 comments stated that these 137 comments on Section 9 were withdrawn because they were
27 for further study, and that the comments are still under study at this point.

28
29 seqno 242, the complaint is that a figure was not deleted. It turns out the strike-through was
30 strangely at the bottom of the figure making it seem that the figure was still present, but in actuality
31 the figure has been deleted. So the comment is has already been accepted by a Kona comment,
32 not accepted.

33
34 seqno 243, 244 reserved/padding issues, all marked as accept.

35
36 seqno 245, suggests explanatory text concerning the minimum implementation (modulation class
37 0) for a 625MC system. There were complaints that it was marked as a technical issue. If a
38 manufacturer wants to build a UT only for VOIP (modulation class 0), he can still do this.

39
40 When another commenter read the text on the screen, it seems that the requirement is to follow all
41 the procedures with the corresponding modulation classes and to implement all the classes.

42
43 The statement is meant to be explanative and not normative, when you follow the reference it will
44 talk about a minimum of modulation class zero. This is an explanation for the reader that if you
45 have a low data rate device for an application, modulation class zero might be sufficient. It's
46 expected for higher-rate applications that you would need to implement all the modulations.

47
48 Another commenter said that this comment would be contradictory to existing text elsewhere in the
49 document.

50

1 You can have a UE device that supports mod class 0 only. The spec allows that. You are reading
2 something into the text. You are assuming something that is mentioned as a requirement.
3
4 A member objected to saying that certain types of usages (marketing statements) should be
5 applied to our air interface specification.
6
7 There is confusion between the two different regimes. If looking at HD-SCDMA document alone,
8 there is text in that document about modulation rates. But that is in isolation for that document.
9 Once we are looking at 802.20, then the text in 802.20 is the governing text. The text in section 17
10 modifies the regime for 802.20 and perhaps says that you need to support all packet formats.
11
12 Chapter 17 and 18 are only related to radio-related performance for testing purposes. Here it is
13 saying that a terminal must follow all the procedures.
14
15 The editor suggested that we say for testing purposes class 0 is required.
16
17 A commenter said that the issue of what mandatory and optional features a terminal should
18 implement is not something that should be hammered out in this particular section of the
19 document.
20
21 Action item to be settled after the Tuesday afternoon coffee break, Victor Hou of Broadcom and
22 Radhakrishna Canchi of Kyocera to hammer out text agreeing on a result. This action item was
23 settled the next day by proposing a rewrite of the paragraph that explicitly mentioned modulation
24 class 0 is required for testing the signaling in a terminal.
25
26 | A set of redlined [Kona](#) minutes will be posted to the website at roughly 7:00 p.m.
27
28 A new revision to the spec incorporating today's changes will also be posted tonight.
29
30 The PM2 session recessed at 5:18 P.M.

1 **Tuesday, November 13, 2007**

2
3 The AM1 session began at 8:51 A.M.

4
5 The Kona minutes have not been posted to the website yet. They will be posted at the coffee
6 break and hopefully will be approved later today.

7
8 seqno 40, 41, 42, disposition has changed to accept 41,42, reject 40.

9
10 seqno 80, 81, 82, same disposition.

11
12 seqno 85, we added packet consolidation padding.

13
14 An action item from yesterday concerning Reserved/Padding issues has been closed.

15
16 seqno 2, it is against IEEE policy to put "Chapter" headers on pages, so in the interest of not
17 making extra work for the IEEE editors, this comment is not accepted.

18
19 seqno 3, The commenter said it is confusing as a manufacturer to have a decision as to which
20 specification to follow, 3GPP2 UMB or IEEE 802.20 ? We should remove all 3GPP2 content and
21 only show the differences between 3GPP2 and IEEE 802.

22
23 The chair stated that our plan was to incorporate elements of 3GPP2 into IEEE 802, and that
24 while it's true that as of today the standards are somewhat similar, later we will administer these
25 elements over time so that they would work well, and not just be an appendage to 3GPP2. Once
26 we have incorporated that information into our specification, it's not longer 3GPP2. As a final
27 matter, the incorporation of other works into another standard is a very common practice.

28
29 A third commenter mentioned that 3GPP2 is not a standards body; rather, it's a specification-
30 writing organization.

31
32 The consensus on this seqno has not changed from the Kona meeting. The comment stays
33 declined, but the commenter would like a clarification that we should reference TIA specifications,
34 not 3GPP2 documents.

35
36 A question arose as to whether consensus can be recorded without 100% agreement. It was
37 clarified that consensus does not imply unanimous agreement.

38
39 seqno 5, from day one, to have one document with incompatible modes seems to be a different
40 situation, and that is what has bothered the commenter, and it has bothered him since the practice
41 ballot days. A response from the floor stated that the 802.16 standard contains various
42 incompatible modes (FDD and TDD). The commenter said that it may be appropriate to put TDD
43 and FDD together, but he feels that the 625MC mode should probably be separate.

44
45 The final disposition is that this comment has been discussed previously, and that the consensus
46 remains that 802.20 modes should be contained in one document (as required by a single PAR).
47 The structure of the document makes it clear which chapters and sections apply to which modes.

48
49 seqno 53, 54, after clarification discussion, the comment has been withdrawn.
50

1 seqno 94, has the issue of ChannelBand record been resolved? The first third of the fix is to re-
2 title 11.2.1 as "ChannelBand record", and the second third is to add references throughout the
3 document. A third issue is to hunt down all such fields and make sure they are specified as
4 variable-length. Finally, Section 7.2.5.5's Channel Record field should be aligned with
5 ChannelBand record. The result was to accept the comment with enhancements.

6
7 seqno 119, the meaning of "beyond the scope of this specification is not clear". Action item to
8 Qualcomm to clarify what this means. The issue concerns how to calculate CQI, and how to
9 transmit it. The intent was to suggest that the Matrix vectors used for CQI calculation do not have
10 to be the same as those used for pre-coding transmission. The action item was settled later by
11 dropping "beyond the scope of this specification" and adding explanatory sentences to both parts
12 of the paragraph to address each issue.

13
14 the Editorial chair announced that we had finished a second pass through the comments. The
15 remaining issues are the minimum performance specification, and discussion associated with
16 seqno 245.

17
18 The AM1 Session recessed at 9:47 A.M.

19 =====

20 The AM2 Session began at 10:33 A.M.

21
22 seqno 153, Discussion on the transmitter performance, a commenter from the floor stated that
23 specifying performance for 64QAM and PSK basically bounds performance for the middle
24 modulation levels such as 8-PSK and 16-QAM. Another commenter said that we always intended
25 to create a follow-on document with further detailed design parameters. On the other side, the
26 commenter said the timing of the release of a follow-on document could not be assured. The
27 commenter was unsatisfied and still feels that 8-PSK and 16-QAM should be specified.

28
29 seqno 154, The second part of the comment asks for spectral flatness and phase noise. A
30 comment from the floor said that MSCE is defined, and thus spectral flatness, jitter, and phase
31 noise are defined by the EVM definition which covers these parameters. You cannot have a lousy
32 phase noise and a good EVM.

33
34 Constellation error and MER/EVM capture a lot of transmitter fidelity parameters. The list includes
35 elements that are specified in specifications that the commenter has worked on. Maybe there are
36 cellular specifications that do not specify these parameters explicitly. We can discuss
37 specifications that have introduced these parameters; there is a track record for these; it gives the
38 implementer more information. Again, in specifications such as DOCSIS the performance is
39 broken down into the parameters that are requested.

40
41 The vice chair stated that the specification is designed to ensure inter-operability, not to assure
42 minimum performance. The minimum performance specification is for later specification.

43
44 The chair stated that later in the week we will address the issue of additional PARs for 802.20, and
45 those things are certainly needed; it is not the job of this specification to address all of those
46 issues.

47
48 If one has a metric that forces 10 other metrics to improve, a question about how far should we go
49 to repeat those other 10 metrics? For example, do we need to specify spectral flatness for each
50 constellation?
51

1 It was mentioned that at the last meeting, that it was stated that there are situations where MER
2 does not capture phase noise under some impairments, but there was immediate disagreement on
3 this point.

4
5 In an ideal world the receiver wants to see a perfect constellation. When we characterize a
6 transmitter's performance, constellation accuracy is essential, and anything beyond that is
7 irrelevant.

8
9 There were questions from the audience to clarify parameters such as adjacent channel rejection
10 and spectral mask. Things like this are regulatory in nature. They are also band-class specific
11 and region-dependent. The relation to inter-operability is not clear. Some kinds of lab
12 measurements would be nice but we are too far from this stage in the specification.

13
14 The specification should be thorough and complete enough to implement. Traditionally the
15 specification itself defines the implementation parameters. That has been the 802 model. The
16 commenter cannot think of an instance where this was not true.

17
18 It was stated that going too much into regulatory requirements, e.g. spectral masks and adjacent
19 channel interference, will make the specification specific to country-specific regulatory bodies,
20 causing early obsolescence. Another commenter said that the approach in other specifications
21 has been to give complete specifications, but those specifications are so loose as to be useless to
22 producing a well-performing implementation.

23
24 To summarize, there are 3 sets of parameters. We have captured transmitter fidelity, covered by
25 the constellation fidelity. There are some receiver parameters that don't need to be specified,
26 because they are up to the implementation. There are a 3rd class of parameters concerning
27 emission limits, but we have already decided that that is for further study, not to be included in this
28 document. With these 3 categories, it is believed that all 3 things in the comment are addressed.

29
30 One thing we could do is to throw in blanket text that states that an implementation must meet
31 local regulatory requirements, but this would be meaningless text.

32
33 The commenter still asked for 8-PSK and 16-QAM constellation error, but the disposition is that
34 the comment is being declined.

35
36 seqno 119, 245 remain.

37
38 seqno 119, the section concerns the non-pre-coded CQI computation, the intent of the sentence
39 was to explain that a method for choosing the random matrices is not specified. The commenter
40 said that if the sentence means that selection of the random matrices is beyond the scope of the
41 specification, then that is what the sentence should read. Another commenter said that the set of
42 matrices selected for CQI calculation might not correspond to the set of matrices used for pre-
43 coding by the access network, and this needs to be captured in the text. Another commenter said
44 that the sentence was confusing and should probably be deleted. We do not want a technical
45 change here. Another proposal was to convert the last sentence of the paragraph to state that
46 selection of the random matrices was beyond the scope of this specification, and move it to the
47 middle of the paragraph. The result was both sentences were modified (middle and end of
48 paragraph), and the comment was accepted.

49
50 seqno 245, we will break for lunch until 2:15, but three people would be called back at 1:30pm to
51 help resolve this comment.

1
2 It was suggested that we do enough work to be able to produce a revision of the document for
3 potential Wednesday morning approval. The result is that we will have an extended lunch, and an
4 extended coffee break.

5
6 The AM2 Session recessed at 11:50 A.M.

7 =====

8 The PM1 Session began at 2:17 P.M.

9
10 seqno 245, after conferencing over lunch, the result is "Regarding support of modulation classes,
11 for radio compliance per section 5.3.4.2. in [24], the UT shall support at least ModClass 0.
12 However, a UT is expected to support additional modulation classes, as indicated in the UT
13 Capability Message." With the new proposed test, the comment was accepted.

14
15 The audience was directed to review the Kona meeting minutes on the 802.20 website. One
16 misspelling of "Ericsson" was found. One Action item in the minutes from Kona was to fix a typo,
17 and it was noticed that the fix-comment had not been resubmitted by Qualcomm as an Atlanta
18 comment. The editor would like approval to remove these 3 duplicated words in the definitions
19 section of the introduction. There were no objections, this will be done.

20 The chair asked for a motion to approve the minutes.

21
22 **Motion** to approve the Kona minutes.

23 Nancy Bravin, so moved.

24 Jim Mollenauer, seconded.

25
26 **Vote**, with no objections, the minutes were approved.

27
28 The editor proposed that we meet again at a much later time, 4:00 P.M., to consider the dark
29 green editorial comments that were slated for acceptance in the 802.20 draft.

30
31 The PM1 Session recessed at 2:47 P.M.

32 =====

33 The PM2 Session began at 4:15 P.M.

34
35 The editor went through groups of 10 comments at a time, asking for revisions.

36
37 seqno 111, if you look at the affected page, the comment states that text should be deleted
38 needlessly. The editor stated that he believed he had the same puzzlement, and implemented the
39 intended change from the comment, using a corrected page number that he determined, but he
40 did not fix the page/line numbers listed in the spreadsheet. The editor made an annotation [page]
41 in the spreadsheet indicating the page number that was affected.

42
43 The editor completed by asking for changes to 241-251. There were no other objections to
44 accepting these comments.

45
46 The editor asked voting entities to reconsider their votes tonight, and to please identify which
47 comments, if any, that if not resolved, would cause a no vote. This information will be required at
48 tomorrow's meeting.

49
50 seqno 251, A questioner from the floor stated that on page 1175, the phrase "Table Table" should
51 be fixed as part of comment 251, accepted.

1
2 The 802.20 chair took the floor, and reminded everyone to meet again at 8:30 A.M. tomorrow.
3 After acceptance of the comment resolution, we should consider subsequent PARs for this group.
4 Two areas that the chair is thinking about, are (a) An inter-operability standard (whether it's
5 possible to do right now is a question), and (b) A standard on how we test for the metrics of any of
6 these standards, common definitions, common approaches. There may be other ideas for PARs,
7 and everyone's input is welcomed. We cannot produce an IEEE Project Authorization Request
8 (PAR) this week, but it is our next order of business. We need to also look at our Policies and
9 Procedures (P&P).

10
11 According to the chair, the formal policy for inter-operability is kind of undefined in the 802
12 standards body, so the requirements for a PAR are unclear.

13
14 The PM2 Session recessed at 4:36 P.M.

1 **Wednesday November 14, 2007**

2

3 The AM1 Session began at 8:50 A.M.

4

5 The editor reviewed the comment resolution done yesterday. The editor stated that a new
6 bookmarked draft will be posted on Thursday. The procedural stated he wanted to know if the
7 new draft had affected any voters on 802.20.

8

9 The procedural vice-chair polled the voting entities as to their voting status:

10

11 Yes Votes

12 =====

- 13 Airvana - not present
- 14 Alcatel-Lucent - no change
- 15 AROSCO - no change
- 16 Ericsson - no change
- 17 Institute of Miyagi Prefecture - no change
- 18 Kyocera - no change
- 19 Motorola - no change
- 20 NEC Infrontia - no change
- 21 Niigata University - no change
- 22 Qualcomm - no change
- 23 Steepest Ascent Ltd - not present
- 24 Strathclyde University - not present

25

26 Abstains

27 =====

- 28 AT&T - not present
- 29 ETRI - not present
- 30 Intel - not present
- 31 LG electronics - not present
- 32 Mitsubishi - not present
- 33 Samsung - not present

34

35 No Votes

36 =====

37 Broadcom

- 38 - have you changed from no to yes? no change
- 39 - if not, please state the unsatisfied no comments

40 Answer: Comment #5, 153, 154, 158, 159

41

42 Nokia Siemens

- 43 - have you changed from no to yes? no change
- 44 - if not, please state the unsatisfied no comments

45 Answer: Comment #3

46

47 The chair stated that we are somewhere around the 99% level of satisfying the comments in this
48 meeting.

49

50 **Motion**, "The WG affirms the resolution of comments that occurred during the November 2007
51 session for Letter Ballot 2m."

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Moved by Jerry Upton
Seconded by Nancy Bravin

During discussion, there were minor edits to the disposition of 153, 154, 158, and 159.

Vote: No negatives, No Abstains, approved by affirmation.

The chair took the floor. He will request that the IEEE Executive Committee go forward and ask that the sponsor ballot be undertaken in the same form as the executive committee directed us to do our balloting. He also said that he is recommending that we continue with membership-entity voting procedures.

The chair said he will make his best effort to initiate a timely sponsor ballot. The timing will be crucial. If we don't get everything organized before the next interim meeting a sponsor ballot may be delayed. Lacking a detailed agenda and comments to work on, the chair is seriously thinking about skipping the next interim and just attending the next plenary session. Taking everyone to Taiwan for little or no work is likely to be a waste of time.

A commenter said that there is work to be done; we need to address the policies and procedures. A question for clarification: does the working group need to have another motion to forward the draft for sponsor ballot? To be safe we should probably take another motion.

Motion, "The working group recommends that 802.20 D3.0m be forwarded to the EC to proceed to sponsor ballot"

Moved by Radhakrishna Canchi
Seconded by Nancy Bravin

Question from the floor, is there a need to do a recirculation because of LB2m changes made to the draft? The chair does not think that it is needed. The questioner said that it may be necessary to allow members who have not been present at the meeting to review the draft changes. The chair stated that he thought that changes could easily be reviewed during sponsor ballot.

A member stated that only if there are very many technical changes is it likely necessary to a 15-day conditional recirculation. Action item: for Chair, Arnie Greenspan, on Friday send a heads-up message to the 802.20 reflector about what has happened in this week's meeting.

The chair stated we might be asked to change to conditional approval by the EC.

Roll Call Vote (forwarding to EC for Sponsor Ballot)

=====

Advanced Network Technical Solutions - not present
Airvana - not present
Alcatel-Lucent - yes
AROSCO - yes
AT&T/Cingular - abstain
Broadcom - no
Ericsson -yes
ETRI - not present
Fujitsu - not present

1 Institute of Miyagi Prefecture - yes
 2 Intel - not present
 3 Kyocera - yes
 4 LG Electronics - not present
 5 Marvel - not present
 6 Mitsubishi - not present
 7 Motorola - yes
 8 NEC Infrontia - yes
 9 Niigata University - yes
 10 Nokia Siemens Networks - no
 11 Nortel - not present
 12 POSDATA - not present
 13 Qualcomm yes
 14 Samsung - not present
 15 Steepest Ascent Ltd - not present
 16 Strathclyde University - not present
 17 Texas Instruments - not present
 18 Vodafone - not present

19
 20 **Vote** is 9(yes)-2(no)-1(abstain).

21
 22 The chair clarified that this motion covers either a straight sponsor ballot approval or a conditional
 23 sponsor ballot approval in the EC.

24
 25 The chair believes that the no votes given today will not be ~~rectified. It is an exercise in futility and~~
 26 ~~an inappropriate delay~~changed. That is the chair's view and he will express it to the EC.

27
 28 The AM1 Session recessed at 9:48 A.M.

29 =====

30 The AM2 Session began at 10:37 A.M.

31
 32 The chair asked if we could form a task group to revise the 802.20 Policies and Procedures.
 33 Volunteers for the group were Jerry Upton, Radhakrishna Canchi, and Mark Klerer.

34
 35 The discussion turned towards inter-operability standards. The chair is somewhat uncomfortable
 36 with coming up with a PAR that refers only to terminal-terminal operability in 802.20 only.

37
 38 In our discussions over transmitter fidelity and receiver sensitivity - in the cellular industry there are
 39 vast thick documents that discuss testing and performance requirements. The goal was to
 40 determine what the transmitter needed to do, and what the receiver should do in terms of
 41 sensitivity. There is a whole realm of discussions on channel specifics, which also implies testing
 42 methodologies to verify that these specifics have been implemented properly.

43
 44 The chair stated that testing and/or certification might result in a different PAR than inter-
 45 operability. The chair does not want to mix the two together.

46
 47 A commenter said there were potentially 3 subjects leading to 3 levels of inter-operability. Many
 48 organizations call their standard an inter-operability standard. That's a different meaning than
 49 what is being said right now. The second is a minimum performance specification. All cellular
 50 standards have associated documentation to the base inter-operability standard to give minimum
 51 performance metrics and a measurement methodology. That is probably the kind of thing

1 requested by Broadcom. The third category is conformance specifications. The question being,
2 how well does the mobile or base station conform to the standard: Is the mobile responding
3 correctly to protocol events? Some technologies specify this and some don't. In CDMA cellular
4 we don't have it. In GSM cellular, there are extensive conformance tests. The question of
5 different technologies playing together nicely is a whole, is a 4th level of inter-operability. Network
6 (Backhaul, Handoff) inter-operability is another 4th level of inter-operability. We are not in the
7 business of defining inter-operability in these 4th senses.
8

9 There is an 802 group working on media independent handover, that has probably under-
10 estimated the size and scope of the work they are undertaking.
11

12 Another commenter from the floor stated that transmitter performance is not really required for
13 inter-operability. In terms of minimum performance, there is uncertainty over whether we can
14 characterize it. There is another set of things called conformance test specifications, i.e. a precise
15 set of methodologies and tests to determine if a piece of equipment follows the standard.
16

17 There was a great deal of controversy over terminology. An inter-operability specification says, if
18 someone complies with the interface then they inter-operate. Some of our debate has been over
19 whether you need to do certain things to inter-operate. Minimum performance is the next step,
20 and is sometimes outside and sometimes inside the standards body.
21

22 To have inter-operability, a PICS = "Protocol Implementation Conformance Specification" is
23 typically done, listing all optional and mandatory features, so a vendor can list all the mandatory
24 and optional features that have been met in a product. This is also known as an implementation
25 profile, e.g. in Bluetooth. A 2nd commenter said that a PICS document should be done. That is
26 usually done by extracting statements with "must", "should", and "may" from the document.
27

28 An corrigendum at some point is premature given we have not finished a published standard.
29 The 802.11 group has had a group that deals with interpretations of their standard.
30

31 The GSM conformance test specifications are monstrous, and maybe we aren't ready to take on a
32 task that large.
33

34 Another benefit of PICS is that a test lab can use it to avoid pursuing fruitless tests. A PICS is
35 typically not short, with one line in a table for each requirement in the document, 1000 lines would
36 not be surprising to have.
37

38 The chair would like to see perhaps two PAR study groups proposed, a Minimum Performance
39 Specification (MPS) study group, and a PICS study group. The chair asked for volunteers for the
40 two study groups, and the volunteers were:
41

42 PAR Study volunteers for PICS

43 Jim Mollenauer

44 Mark Klerer

45
46 PAR study volunteers for MPS

47 Jim Tomcik

48 Victor Hou
49

50 The upcoming meetings for 2008 are:
51

1 Howard Plaza Hotel, Taipei, January
2 Caribe Royale, Orlando Florida, March
3 Hyatt Regency Jacksonville Riverfront, May
4 Hyatt Regency Denver at CC, July
5 Hilton Waikoloa, Kona, HI, September
6 Hyatt Regency Dallas, November
7

8 One place being considered for a 2009 plenary is Rome where per-night expense is \$475/night
9 with \$1000/registration, vs. Vancouver at \$175/night and \$400/registration.

10

11 **Motion**, To Adjourn this session of 802.20

12

13 Jerry Upton, so moved.

14 Nancy Bravin, seconded

15

16 **Vote**, No one objected to adjourning.

17

18 The meeting ended at 11:45 A.M. on Wednesday November 14, 2007.

Appendix 1 - November 2007 - Attendance Credits and Voter Status

Last Name	First Name	Nov07 Voter	Jan08 Voter	Nov06	Jan07	Mar07	May07	Jul07	Sep07	Nov07
Agis	Edward	M	No	1						
Ahmadi	Sassan	M	No	1						
Barriac	Gwen	M	M		1	1	1	1		
Bavafa	Moussa	M	M	1					1	
Bernstein	Jeffrey	M	M	1	1	1	1		1	1
Bravin	Nancy	M	M	1	1	1	1	1	1	1
Budianu	Petru	M	M				1	1	1	
Bussey	Chris	M	M	1	1	1	1	1		
Canchi	Radhakrishna	M	M	1	1	1	1	1	1	1
Carneiro	Edson	M	M			1	1	1		
Carson	Peter	M	M		1	1				
Castell	Harold P.	M	M	1		1		1		
Dean	Chris	M	M	1	1	1	1	1		
Dorward	Lynne	M	No			1				
Dunn	Doug	M	M	1	1	1				
Eilts	Henry	M	No	1						
Epstein	Mark	M	M	1	1	1	1	1		1
Feder	Peretz	M	M	1	802.21	802.21	802.21	1		
Freeland	Graham	M	M	1	1	1		1	1	
Garcia-Alis	Daniel	M	M	1	1	1		1		
Garg	Deepshikha	M	M	1		1				
Gillies	Donald	M	M			1	1	1	1	1
Gomes	Eladio	M	M	1		1		1		
Gore	Dhananjay	M	M	1	1		1			
Gorodetsky	Svetlana	M	M	1		1	1	1		
Gorokhov	Alexei	M	M	1	1					
Gowaikar	Radhika	M	M				1	1	1	1
Greenspan	Arnie	M	M	1	1	1	1	1	1	1
Hou	Victor	M	M	1	1	1	1	1	1	1
Hu	Rose	M	No	1						
Hu	Teck	M	No	1						
Huo	David	M	No		1					

Appendix 1 - November 2007 - Attendance Credits and Voter Status

Last Name	First Name	Nov07 Voter	Jan08 Voter	Nov06	Jan07	Mar07	May07	Jul07	Sep07	Nov07
Ibbetson	Luke	M	No	1						
Iimuro	Kazuyoshi	M	M	1	1			1		
Ikeda	Yutaka	M	No	1						
Ishida	Kazuhito	M	M		1	1	1		1	1
Jeong	Byung-Jang	M	No	1						
Jette	Alan	M	M	1	1	1	1			
Ji	Baowei	M	No	1						
Ji	Tingfang	M	M	1	1	1	1	1	1	1
Jones	Dennis	M	M			1	1	1		
Kadous	Tamer	M	M	1	1					1
Kalhan	Amit	M	M	1	1	1	1			
Khademi	Majid	M	M	1			1	1		
Khandekar	Aamod	M	M	1	1	1				
Khatibi	Farrokh	M	M	1	1	1	1	1		802.21
Kim	Tae Young	M	M	1	1					
Kim	Yong Ho	M	No	1						
Kim	Young-Ho	M	No		1					
Kim	Youngsoo	M	No	1						
Kim	Hyeon Soo	M	No	1						
Kimura	Shigeru	M	No	1						
Kitahara	Minako	M	M	1	1	1	1	1		
Klerer	Mark	M	M	1	1	1	1	1	1	1
Knisely	Douglas	M	M	1		1				
Kolze	Tom	M	M	1		1	1			
Koo	Changhoi	M	M	1					1	
Lalaguna	Pablo	M	No	1						
Lawrence	Lisa	M	M			1	1			
Lee	Heesoo	M	M	1	1	1	1		1	
Lee	Mihyun	M	M	1	1					
Li	Yingyang	M	No	1						
Martynov	Irina	M	M	1	1	1	1	1	1	1

Appendix 1 - November 2007 - Attendance Credits and Voter Status

Last Name	First Name	Nov07 Voter	Jan08 Voter	Nov06	Jan07	Mar07	May07	Jul07	Sep07	Nov07
Martynov	Michael	M	M	1	1	1	1	1	1	1
McMahon	Anthony	M	M	1	1	1		1		
McMillan	Donald	M	M	1				1		
Miyazono	Max	M	M	1		1	1	1		
Mollenauer	James	M	M	1		1	1	1	1	1
Murakami	Kazuhiro	M	M	1		1		1	1	
Nabar	Romit	M	No	1						
Naguib	Ayman	M	No		1		1			
Naidu	Mullaguru	M	M	1	1	1	1	1		
Nakamura	Kenichi	M	No	1				1		
Nakamura	Tetsuya	M	No	1	1		1	1	1	
Nakano	Shinji	M	M	1	1					
Nguyen	Nha	M	M	1	1	1	1	1		
Noh	Taegyun	M	No	1						
Novick	Fred	M	M	1		1		1		
O'Brien	Francis	M	M		1	1	1	1		
Oguma	Hiroshi	M	M	1				1	1	1
Park	Chul	M	No	1						
Park	DS	M	No	1						
Park	Jeongho	M	No	1						
Patel	Chirag	M	M				1	1	1	
Pearson	Orlett	No	No						1	1
Pfann	Eugen	M	M	1	1	1			1	
Pirhonen	Riku	M	M	1		1				1
Poisson	Sebastien	M	M	1		1	1	1		
Prakash	Rajat	M	M	1	1					
Preece	Rob	M	M	1	1	1	1	1		
Ragsdale	James	M	M	1		1	1	1	1	1
Rajkumar	Ajay	M	M	802.21	802.21	802.21	802.21	1	1	802.21
Sampath	Hemanth	M	M	1	1		1	1	1	
Sano	Masato	M	M	1	1					

Appendix 1 - November 2007 - Attendance Credits and Voter Status

Last Name	First Name	Nov07 Voter	Jan08 Voter	Nov06	Jan07	Mar07	May07	Jul07	Sep07	Nov07
Sasaki	Shigenobu	M	M	1				1		
Seo	Bangwon	M	No	1						
Shields	Judy	M	M			1	1			
Shively	David	M	M	1		1				
Shono	Takashi	M	No	1						
Sihn	Gyung Chul	M	No	1						
Sivanesan	Kathiravetpillai	M	No	1						
Song	Young Seog	M	No	1						
Srinivasan	Roshni	M	M	1	1					
Suh	Mark	M	M	1	1	1				
Sun	Jing	M	M				1	1	1	1
Surcobe	Valentin	M	M	1		1	1	1		
Suzuki	Tomohiro	M	M	1	1	1	1		1	1
Tan	Teik-Kheong	No	No	1						
Teague	Harris	M	M	1	1	1				
Tee	Lai-King Anna	M	M	1	1	1	1			
Tomcik	James	M	M	1	1	1	1	1	1	1
Upton	Jerry	M	M	1	1	1	1	1	1	1
Valbonesi	Lucia	M	No				1			
Valls	Juan Carlos	M	M	1	1	1	1	1	1	
Vijayan	Rajiv	M	M	1	1	1				
Vivanco	Silvia	M	M	1	1	1	1	1		
Wang	Michael	M	No					1	1	
Wasilewski	Thomas	M	M	1		1				
Wieczorek	Alfred	M	No			1				
Wilson	Joanne	M	M	1	1			1		
Yallapragada	Rao	M	M	1	1	1				
Yeh	Choongil	M	No	1						
Yoon	Young C.	No	No				1			
Youssefmir	Michael	No	No	1					1	
Yuza	Masaaki	M	M	1						1

Appendix 2 - 802.20 Declarations of Affiliation

	Last Name	First Name	Employer	Affiliation	Ultimate Parent of Employer	Ultimate Parent of Affiliation	URL1
1	Agis	Ed	Intel Corporation	Same	Not Applicable	Not Applicable	www.intel.com
2	Agrawal	Avneesh	Qualcomm, Incorporated	Same	Not Applicable	Not Applicable	www.qualcomm.com
3	Ahmadi	Sassan	Intel Corporation	Intel Corporation	Intel Corporation	Intel Corporation	www.intel.com
4	Ahn	Jae Young	ETRI	Same	N/A	N/A	www.etri.re.kr
5	Alamouti	Siavash M.	Intel Inc.	Same	N/A	N/A	www.intel.com
6	Ali	Murtaza	Texas Instruments, Inc.	Same	Not Applicable	Not Applicable	www.ti.com
7	Alphonse	Jean R.	Lucent Technologies	Same	Not Applicable	Not Applicable	www.alcatel-lucent.com
8	Alsaleh	Haggar	Consultant	Same	Not Applicable	Not Applicable	
9	Arefi	Reza	Intel Corporation	same	same	same	www.intel.com
10	Bajaj	Rashmi	France Telecom R&D	same	Orange Ftgroup	OrangeFTGroup	www.francetelecom.com/en
11	Barriac	Gwen	Qualcomm, Incorporated	Same	Not Applicable	Not Applicable	www.qualcomm.com
12	Bavafa	Moussa	Broadcom Corporation	Same	Not Applicable	Not Applicable	www.broadcom.com
13	Bernstein	Jeff	Telecommunications Management Group, Inc.	QUALCOMM, Incorporated	Not Applicable	Not Applicable	www.tmgtelecom.com
14	Bims	Harry	Protocomm Systems, LLC	Apple Inc.	Not Applicable	Not Applicable	www.protocommsystems.com
15	Bravin	Nancy	Self	Qualcomm	Not Applicable	Qualcomm	www.qualcomm.com
16	Budianu	Petru Cristian	Qualcomm	Same	Not Applicable	Not Applicable	www.qualcomm.com
17	Bussey	Chris J.	Bussey Consulting Services, Inc.	Qualcomm	Chris J Bussey	Not Applicable	www.qualcomm.com
18	Cai	Sean	ZTE USA Inc.	Same	ZTE Corp	Not Applicable	www.zteusa.com
19	Canchi	Radhakrishna	Kyocera Telecommunications Research Corporation.	Same	Kyocera Corporation.	Kyocera Corporation	www.ktrc-na.com
20	Carlo	Jim	J.Carlo Consulting LLC	Huawei Technology	Not Applicable	Not Applicable	www.huawei.com
21	Carneiro	Edson	EPEC Solutions Inc.	Qualcomm Brazil	Not Applicable	Qualcomm	www.epecsolutions.com
22	Carson	Peter	Qualcomm, Inc.	Same	Not Applicable	Not Applicable	

802.20 Declarations of Affiliation

	Last Name	First Name	Employer	Affiliation	Ultimate Parent of Employer	Ultimate Parent of Affiliation	URL1
23	Castell	Harold P.	Bussey Consulting Services, Inc.	Qualcomm	Chris J Bussey	Not Applicable	www.qualcomm.com
24	Chae	Suchang	ETRI(Electronics and Telecommunications Research Institute)	Same	Not Applicable	Not Applicable	www.etri.re.kr
25	Chen	Yao	Beijing Samsung Telecommunication	Same	Samsung Electronics Company	Not Applicable	www.samsung.com
26	Cho	Juphil	Kunsan National University	Same	Not Applicable	Not Applicable	www.kunsan.ac.kr
27	Choi	Hyoungjin	TTA	same	Not Applicable	Not Applicable	www.tta.or.kr
28	Choi	Yang-Seok	Intel Corporation	Same	NA	NA	www.intel.com
29	Chong	Chia-Chin	DoCoMo USA Labs	Same	NTT DoCoMo	N/A	www.docomolabs-usa.com
30	Chun	Jin Young	LGE	Same	Not Applicable	Not Applicable	www.lge.com
31	Chung	Jaeho	KT Corporation	Same	Not Applicable	Not Applicable	www.kt.co.kr
32	Cleveland	Joseph	Self-Employed	Same	Not Applicable	Not Applicable	
33	Comstock	David	Huawei Technologies Co,Ltd	Same	Not Applicable	Not Applicable	www.huawei.com
34	Crozier	Eugene	SR Telecom Inc	Same	Not Applicable	Not Applicable	www.srtelecom.com
35	Dean	Christopher	Telecommunications Management Group, Inc. (TMG)	Qualcomm, Inc.	Not applicable	Not applicable	www.tmgtelecom.com
36	Dhaliwal	Upkar	Future Wireless Technologies, L.P.	Same	Not Applicable	Not Applicable	www.futurewirelesstech.com
37	Dodd	Don	Morningstar Mergers	same	N/a	N/a	Mstarmgt@aol.com
38	Dorward	Lynne	TMG Inc./LADCOMM Corporation	Qualcomm, Inc.	Not applicable	Not applicable	www.ladcomm.com*
39	Dunn	Doug	Kyocera Telecommunications Research Corporation	Same	Kyocera Corporation	Kyocera Corporation	www.ktrc-na.com
40	Eilts	Hank	Texas Instruments, Inc.	Same	Not Applicable	Not Applicable	www.ti.com
41	Epstein	Mark	Qualcomm	same	NA	NA	www.qualcomm.com
42	Feder	Peretz	Lucent Technologies	Bell Laboratories	Lucent Technologies	NA	www.lucent.com
43	Ferguson	Alistair	Selbourne Associates	Same	Not Applicable	Not Applicable	
44	Fong	Mo Han	Nortel	Same	Not Applicable	Not Applicable	www.nortel.com

802.20 Declarations of Affiliation

	Last Name	First Name	Employer	Affiliation	Ultimate Parent of Employer	Ultimate Parent of Affiliation	URL1
45	Freeland	Graham	Steepest Ascent Ltd	same	Not Applicable	Not Applicable	www.steepestascent.com
46	Gal	Dan	Lucent Technologies	same	Not Applicable	Not Applicable	www.lucent.com
47	Garcia-Alis	Daniel	Steepest Ascent Ltd	same	Not Applicable	Not Applicable	www.steepestascent.com
48	Garg	Deepshikha	Kyocera Telecommunications Research Corporation.	Same	Kyocera Corporation.	Kyocera Corporation	www.ktrc-na.com
49	Gil	Gye-Tae	KT	Same	Not Applicable	Not Applicable	www.kt.co.kr/kthome/eng/index.jsp
50	Gillies	Donald	Qualcomm Incorporated	Same	Not Applicable	Not Applicable	www.qualcomm.com
51	Gomes	Eladio Rodrigues	EPEC Solutions Inc.	Qualcomm Brazil		Qualcomm	www.epecsolutions.com
52	Gore	Dhananjay	Qualcomm, Incorporated	Same	Not Applicable	Not Applicable	www.qualcomm.com
53	Gorodetsky	Svetlana	Gorodetsky Consulting	Qualcomm Inc.	Not applicable	Not applicable	
54	Gorokhov	Alex	Qualcomm Inc.	Same	Not Applicable	Not Applicable	www.qualcomm.com
55	Gowaikar	Radhika	Qualcomm Inc.	Same	Not Applicable	Not Applicable	www.qualcomm.com
56	Greenspan	Arnie	AROSCO Inc.	Same	Not Applicable	Not Applicable	
57	Guo	Qiang	Motorola, Inc.	Same	Not Applicable	Not Applicable	www.motorola.com
58	Haug	John	Motorola, Inc.	Same	Not Applicable	Not Applicable	www.motorola.com
59	Hou	Victor	Broadcom Corporation	Same	Not Applicable	Not Applicable	www.broadcom.com
60	Hu	Rose	Nortel Networks	Same	Not Applicable	Not Applicable	www.nortel.com
61	Hu	Teck	Siemens Network LLC	Same	Siemens AG	Siemens AG	www.siemens.com
62	Humbert	John	Sprint Corporation	Same	Not Applicable	Not Applicable	www.sprint.com
63	Huo	David	Lucent Technologies	Same	Not Applicable	Not Applicable	www.lucent.com
64	Hur	Yerang	POSDATA Co. Ltd.,	Same	Not Applicable	Not Applicable	www.posdata.co.kr
65	Ibbetson	Luke	Vodafone Group Services Limited	same	not applicable	Not Applicable	www.vodafone.com
66	Iimuro	Kazuyoshi	Kyocera corporation	Same	Not Applicable	Not Applicable	www.kyocera.co.jp
67	Ikeda	Yutaka	Sharp Corp	same	not applicable	not applicable	www.sharp-world.com
68	Ishida	Kazuhito	Qualcomm Inc.	same	Not applicable	Not Applicable	www.qualcomm.com

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69	Jeong	Byung Jang	ETRI	Same	Not Applicable	Not Applicable	www.etri.re.kr
70	Jette	Al	Motorola, Inc.	Same	Not Applicable	Not Applicable	www.motorola.com
71	Ji	Baowei	Samsung Telecommunications America, LLP	Same	Samsung Electronics Company	Not Applicable	www.samsungtelecom.com/
72	Ji	Tingfang	Qualcomm, Incorporated	Same	Not Applicable	Not Applicable	www.qualcomm.com
73	Jones	Dennis	Taliesen North Consulting	Qualcomm	Not Applicable	Not Applicable	
74	Joo	Panyuh	Samsung Electronics	Same	Samsung Electronics	Not Applicable	www.samsung.com
75	Kadous	Tamer	Qualcomm, Incorporated	Same	Not Applicable	Not Applicable	www.qualcomm.com
76	Kalhan	Amit	Kyocera Telecommunications Research Corporation	Same	Kyocera Corporation	Kyocera Corporation	www.ktrc-na.com
77	Kanai	Takeo	Symbies, Inc.	Softbank BB Corp.	N/A	N/A	www.symbies.com/
78	Kang	Hyunjeong	Samsung Electronics Company	Same	Samsung Electronics Company	Not Applicable	www.samsung.com
79	Katayama	Masahide	Kyocera Corp	same	not applicable	Not Applicable	www.kyocera.co.jp
80	Kawabata	Hiro	Qualcomm	Same	not applicable	Not Applicable	www.qualcomm.com
81	Khademi	Majid	Khademi Consulting	Qualcomm	Not Applicable	Not Applicable	www.qualcomm.com
82	Khandekar	Aamod	Qualcomm, Incorporated	Same	Not Applicable	Not Applicable	www.qualcomm.com
83	Khatibi	Farrokh	Qualcomm, Incorporated	Same	Not Applicable	Not Applicable	www.qualcomm.com
84	Kiernan	Brian	Interdigital Communications Corp	same	not applicable	Not Applicable	www.interdigital.com
85	Kim	Hyeon Soo	Samsung Electronics Company	Same	Samsung Electronics Company	Not Applicable	www.samsung.com
86	Kim	Jae-Ho	ETRI	Same	Not Applicable	Not Applicable	www.etri.re.kr
87	Kim	Peter	TTA	same	Not Applicable	Not Applicable	www.tta.or.kr
88	Kim	Taeyoung	Samsung Electronics Company	Same	Samsung Electronics Company	Not Applicable	www.samsung.com
89	Kim	Yong Ho	LGE	Same	Not Applicable	Not Applicable	www.lge.com
90	Kim	Young Ho	Samsung Electronics Company	Same	Samsung Electronics Company	Not Applicable	www.samsung.com

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	Last Name	First Name	Employer	Affiliation	Ultimate Parent of Employer	Ultimate Parent of Affiliation	URL1
91	Kim	Young Kyun	Samsung Electronics Company	Same	Samsung Electronics Company	Not Applicable	www.samsung.com
92	Kim	Youngsoo	Samsung Electronics Company	Same	Samsung Electronics Company	Not Applicable	www.samsung.com
93	Kimura	Shigeru	Kyocera Corp.	Same	Not Applicable	Not Applicable	www.kyocera.co.jp
94	Kitahara	Minako	Kyocera Corp.	Same	Not Applicable	Not Applicable	www.kyocera.co.jp
95	Kitamura	Takuya	Fujitsu Limited	Same	Not Applicable	Not Applicable	www.fujitsu.com
96	Klerer	Mark	QUALCOMM Flarion Technologies	Same	QUALCOMM, Incorporated	Not Applicable	www.qualcomm.com/qft/
97	Knisely	Douglas	Airvana, Inc.	Same	Not Applicable	Not Applicable	www.airvana.com
98	Kolze	Tom	Broadcom	same	Not applicable	Not applicable	www.broadcom.com
99	Koo	Changhoi	Samsung Telecommunications America, LLP	Samsung Electronics	Same	Same	www.samsungtelecom.com
100	Koplyay	Ferenc	Freescale Semiconductor	Same	N/A	N/A	www.freescale.com
101	Kujawski	Fred	AirCell Inc.	Same	Not Applicable	Not Applicable	www.aircell.com
102	Kwon	Dong-Seung	ETRI	same	Not applicable	Not applicable	www.etri.re.kr
103	Kwon	Young-Hyoun	LGE	Same	Not Applicable	Not Applicable	www.lge.com
104	Lalaguna	Pablo	MedStar Systems, LLC	Qualcomm		Qualcomm	www.medstarsystems.com
105	Lawrence	Lisa	CTCI	Qualcomm	Same	Same	www.ctci.ca
106	Lee	Heesoo	ETRI	Same	Not Applicable	Not Applicable	www.etri.re.kr
107	Lee	Jungwon	Marvell Semiconductor Inc	Same	Marvell Technology Group, Ltd	Not Applicable	www.marvell.com
108	Lee	Mihyun	Samsung Electronics Company	Same	Samsung Electronics Company	Not Applicable	www.samsung.com
109	Lee	Sungjin	Samsung Electronics Company	Same	Samsung Electronics Company	Not Applicable	www.samsung.com
110	Lee	Wook-Bong	LGE	Same	Not Applicable	Not Applicable	www.lge.com
111	Li	Jun	Nortel Networks, Inc.	Same	Nortel Networks, Inc.	Not Applicable	www.nortel.com
112	Li	Thomas	Huawei Technologies Co,Ltd	Same	not applicable	Not Applicable	www.huawei.com

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113	Li	Yingyang	Beijing Samsung Telecommunication	Same	Samsung Electronics Company	Not Applicable	www.samsung.com
114	Li	Yong	Qualcomm Inc	Same	Not Applicable	Not Applicable	www.qualcomm.com
115	Lim	Hyoung Kyu	Samsung Electronics Company	Same	Samsung Electronics Company	Not Applicable	www.samsung.com
116	Lin	Jiezhen	Siemens Network Ltd, Beijing	Siemens Ltd., China	Siemens AG	Siemens AG	www.siemens.com.cn
117	Liu	Walter	FutureWei Technologies, Inc	Same	Huawei Technologies Co., Ltd	N/A	www.futurewei.com
118	Lo	Titus	Neocific, Inc.	Same	N/A	N/A	
119	Lu	Jianmin	FutureWei Technologies, Inc	Same	Huawei Technologies Co., Ltd	N/A	www.futurewei.com
120	Ma	Steve	Freescale Semiconductor	Same	N/A	N/A	www.freescale.com
121	Maez	David	Navini Networks	Same	Not Applicable	Not Applicable	www.navini.com
122	Martynov	Irina	Belgud International	Qualcomm		Qualcomm	
123	Martynov	Michael	Belgud International	Qualcomm		Qualcomm	
124	McGinniss	David S.	Sprint Nextel	Same	Not Applicable	Not Applicable	www.sprint.com
125	McMahon	Anthony	Institute for System Level Integration	Strathclyde University	Not applicable	Not applicable	www.sli-institute.ac.uk
126	McMillan III	Donald C.	Advanced Network Technical Solutions, Inc.	Same	N/A	N/A	www.antsinc.com
127	Miyazono	Max	Qualcomm Inc	Same	Not Applicable	Not Applicable	www.qualcomm.com
128	Mollenauer	Jim	Technical Strategy Associates	Motorola Inc.	Not applicable	Not Applicable	www.Technicalstrategy.com
129	Murakami	Kazuhiro	Kyocera Corporation	Same	Not Applicable	Not Applicable	www.kyocera.co.jp
130	Murphy	Peter A.	Intel Corp.	Same	Not applicable	Not applicable	www.intel.com
131	Naaman	Laith	Intel Corp.	Same	Not Applicable	Not Applicable	www.intel.com
132	Nabar	Rohit	Marvell Semiconductor Inc	Same			www.marvell.com
133	Nagai	Yukimasa	Mitsubishi Electric	Same	Not Applicable	Not Applicable	www.mitsubishielectric.co.jp/
134	Nagaraj	Shirish	Motorola	Same	Not Applicable	Not Applicable	www.motorola.com
135	Naguib	Ayman	Qualcomm Inc.	Same	Not Applicable	Not Applicable	www.qualcomm.com

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	Last Name	First Name	Employer	Affiliation	Ultimate Parent of Employer	Ultimate Parent of Affiliation	URL1
136	Naidu	Mullaguru	Qualcomm, Incorporated	Same	Not Applicable	Not Applicable	www.qualcomm.com
137	Nakamura	Kenichi	Fujitsu Limited	Same	Not Applicable	Not Applicable	www.fujitsu.com/global/
138	Nakamura	Tetsuya	NTT MCL Inc.	same	NTT Corp.	Not Applicable	www.nttmcl.com
139	Nakano	Shinji	Kyocera Corp.	Same	Not Applicable	Not Applicable	www.kyocera.co.jp
140	Navidi	Pierre	XG Stream Ltd	OAK GLOBAL SA	Not Applicable	Not Applicable	
141	Ngo	Chiu	Samsung Electronics	Same	N/A	N/A	www.samsung.com
142	Nguyen	Nha	Bussey Consulting Services, Inc.	Qualcomm	Chris J Bussey	Not Applicable	www.qualcomm.com
143	Noh	Taegyun	ETRI	Same	Not Applicable	Not Applicable	www.etri.re.kr
144	Novick	Fred	Bussey Consulting Services, Inc.	Qualcomm	Chris J Bussey	Not Applicable	www.qualcomm.com
145	O'Brien	Francis E.	Lucent Technologies	Same	Lucent Technologies	Not applicable	www.lucent.com
146	Odlyzko	Paul	Motorola	same	Not Applicable	Not Applicable	
147	Oguma	Hiroshi	Industrial Technology Institute Miyagi Prefecture Government	Tohoku University	Not Applicable	Not Applicable	www.mit.pref.miyagi.jp
148	Oh	Changyoon	Samsung Electronics Company	Same	Samsung Electronics Company	Not Applicable	www.samsung.com
149	Oprescu	Val	Motorola, Inc.	Same	Not Applicable	Not Applicable	www.motorola.com
150	Palanivelu	Arul	Marvell Semiconductor Inc	Same			www.marvell.com
151	Panicker	John	NORTEL	Same	Not Applicable	Not Applicable	www.nortel.com
152	Park	Chul	ETRI(Electronics and Telecommunications Research Institute)	Same	Not Applicable	Not Applicable	www.etri.re.kr
153	Park	DS	Samsung Electronics Company	Same	Samsung Electronics Company	Not Applicable	www.samsung.com
154	Park	Jeongho	Samsung Electronics Company	Same	Samsung Electronics Company	Not Applicable	www.samsung.com
155	Park	Sung-Eun	Samsung Electronics Company	Same	Samsung Electronics Company	Not Applicable	www.samsung.com
156	Park	Won-Hyoung	SK Telecom	Same	Not Applicable	Not Applicable	www.sktelecom.com

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	Last Name	First Name	Employer	Affiliation	Ultimate Parent of Employer	Ultimate Parent of Affiliation	URL1
157	Patel	Chirag S.	Qualcomm	Same	Not Applicable	Not Applicable	www.qualcomm.com
158	Patzer	Steve	Intel Corp.	SAME	Not Applicable	Not Applicable	
159	Pearson	Orlett	Alcatel-Lucent	Same	Not Applicable	Not Applicable	
160	Pfann	Eugen	University of Strathclyde	same	not applicable	not applicable	www.strath.ac.uk
161	Pirhonen	Riku	Nokia Siemens Networks	Same	Nokia	Not Applicable	www.nokiasiemensnetworks.com
162	Pittampalli	Eshwar	Lucent Technologies	Same	Not Applicable	Not Applicable	www.lucent.com
163	Poisson	Sebastien	Oasis Wireless Inc	Qualcomm	N/A	N/A	www.oasiswireless.net
164	Prakash	Rajat	Qualcomm Inc	Same	Not Applicable	Not Applicable	www.qualcomm.com
165	Preece	Rob	Bussey Consulting Services, Inc.	Qualcomm	Chris J Bussey	Not Applicable	www.qualcomm.com
166	Puthenkulam	Jose	Intel Corporation	Same	Not Applicable	Not Applicable	www.intel.com
167	Qian	Xiaoshu	Intel Corporation	Same	N/A	N/A	www.intel.com
168	Ragsdale	Jim	Ericsson Inc	Telefon AB - L.M. Ericsson	Telefon AB - L.M. Ericsson	same	www.ericsson.com/us
169	Rajadurai	Rajavelsamy	Samsung India Software Operations Private Limited	Same	Samsung Electronics Company	Same	www.samsungindiasoft.com
170	Rajkumar	Ajay	Lucent Technologies Inc.	Same			www.lucent.com
171	Sampath	Hemanth	Qualcomm, Incorporated	Same	Not Applicable	Not Applicable	
172	Sano	Masato	Kyocera Corp.	Same	Not Applicable	Not Applicable	www.kyocera.co.jp
173	Santhanakrishnan	Anand	Stevens Institute of Technology	Same	Not Applicable	Not Applicable	www.stevens.edu
174	Sasaki	Shigenobu	Niigata University	Same	Not applicable	Not Applicable	www.niigata-u.ac.jp
175	Seo	Bangwon	ETRI	Same	Not Applicable	Not Applicable	www.etri.re.kr
176	Shields	Judy	LADCOMM	Qualcomm	NA	NA	
177	Shively	David	Cingular Wireless	Same	AT&T / BellSouth	Same	www.cingular.com

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	Last Name	First Name	Employer	Affiliation	Ultimate Parent of Employer	Ultimate Parent of Affiliation	URL1
178	Shono	Takashi	Intel K.K.	Same	Intel Corporation	Same	www.intel.co.jp
179	Sihn	Gyung-Chul	ETRI	Same	Not Applicable	Not Applicable	www.etri.re.kr
180	Sivanesan	Kathiravetpillai	Samsung Electronics Company	Same	Samsung Electronics Company	Not Applicable	www.samsung.com
181	Song	LeiLei	Marvell Semiconductor Inc	Same			www.marvell.com
182	Song	Young Seog	ETRI	same	Not applicable	Not applicable	www.etri.re.kr
183	Sorensen	Henrik	Agere Systems	Same	Not applicable	Not Applicable	www.agere.com
184	Springer	Warren	Springer Associates	Same	Not Applicable	Not Applicable	
185	Srinivasan	Roshni	Intel Corporation	Same	Not Applicable	Not Applicable	www.intel.co
186	Staver	Doug	3581969 Canada Inc.	Same	Not Applicable	Not Applicable	
187	Stuby	Rick	Agere Systems	Same	Not Applicable	Not Applicable	www.agere.com
188	Suh	Mark	Samsung Telecommunications America	Same	Samsung Electronics Company	Not Applicable	www.samsungtelecom.com
189	Sun	Jing	Qualcomm	Same	Not applicable	Not Applicable	www.qualcomm.com
190	Surcobe	Valentin	Motorola	same	Not applicable	Not Applicable	www.motorola.com
191	Suzuki	Tomohiro	Kyocera Corp.	Same	Not Applicable	Not Applicable	www.kyocera.co.jp
192	Tan	Teik-Kheong (TK)	NXP Semiconductors	Same	Not Applicable	Not Applicable	www.nxp
193	Teague	Harris	Qualcomm, Incorporated	Same	Not Applicable	Not Applicable	www.qualcomm.com
194	Tee	Anna	Samsung Telecommunications America	Same	Samsung Electronics Co., Ltd.	Not Applicable	www.samsungwirelss.com
195	Tomcik	Jim	Qualcomm,	Same	Not Applicable	Not Applicable	www.qualcomm.com
196	Ulupinar	Fatih	Qualcomm, Incorporated	Same	Not Applicable	Not Applicable	www.qualcomm.com
197	Upton	Jerry	Self, JUpton Consulting	Qualcomm and Self	NA	Qualcomm, Inc. and Self	

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198	Vaidya	Rahul	Samsung India Software Operations Private Limited	Same	Samsung Electronics Company	Same	www.samsungindiasoft.com
199	Valbonesi	Lucia	Motorola, Inc.	Same	Not Applicable	Not Applicable	www.motorola.com
200	Valls	Juan Carlos	Telecommunications Management Group	Qualcomm, Inc.	Not applicable	Not applicable	www.tmgtelecom.com
201	Vijayan	Rajiv	Qualcomm, Incorporated	Same	Not Applicable	Not Applicable	www.qualcomm.com
202	Vivanco	Silvia	Telecommunications Management Group	Qualcomm	Not applicable	Not applicable	www.tmgtelecom.com
203	Ward Jr	Robert M	Northrop Grumman	Same	N/A	N/A	
204	Wasilewski	Tom	Qualcomm Incorporated	Same	Not Applicable	Not Applicable	www.qualcomm.com
205	Watanabe	Fujio	DoCoMo Communications Laboratories USA, Inc.	Same	NTT DoCoMo USA, Inc.	Not Applicable	www.docomolabs-usa.com
206	Wieczorek	Al	Motorola, Inc.	Same	Not Applicable	Not Applicable	www.motorola.com
207	Wilson	Joanne	ArrayComm, LLC	Same	Ygomi, LLC	Ygomi, LLC	www.arraycomm.com
208	Wu	Geng	Nortel Networks.	Same	Not Applicable	Not Applicable	www.nortel.com
209	Xiaoshu	Qian	Intel Corp	Same	N/A	N/A	www.intel.com
210	Yaghoobi	Hassan	Intel Corporation	Same	Not Applicable	Not Applicable	www.intel.com
211	Yallapragada	Rao	Qualcomm, Incorporated	Same	Not Applicable	Not Applicable	www.qualcomm.com
212	Yeh	Choong il	ETRI	same	Not applicable	Not applicable	www.etri.re.kr
213	Yin	Hujun	Intel Corp.	Same	N/A	N/A	www.intel.com
214	Yoon	Young	LG Electronics Mobile Research LLC	Same	LG Electronics Inc.	Not Applicable	www.lge.com
215	Youssefmir	Michael	Self	ArrayComm		Ygomi Group	www.arraycomm.com
216	Yuda	Tetsuya	Kyocera Corp.	Same	Not Applicable	Not Applicable	www.kyocera.co.jp
217	Yun	Jungnam	POSDATA Co. Ltd.,	Same	Not Applicable	Not Applicable	www.posdata.co.kr

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218	Yuza	Masaaki	NEC Infrontia Corp.	same	NEC Corp.	Not Applicable	www.necinfrontia.co.jp
219	Zhang	Xin	Qualcomm	Same	Not Applicable	Not Applicable	www.qualcomm.com
220	Zhou	Yan	Qualcomm	Same	Not Applicable	Not Applicable	www.qualcomm.com
221	Zhu	Peiyong	Nortel	Same	Not Applicable	Not Applicable	www.nortel.com
222							
223							