IEEE P802.19
Wireless Coexistence

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| September 2011 TG1 Minutes |
|  Date: 19th to 23th September 2011  |
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The document records the IEEE 802.19 TG1 minutes of 802 Wireless Interim Session in Okinawa, Japan, Sept. 19-23, 2011.

IEEE 802.19 TG1 Chair: Tuncer Baykas
IEEE 802.19 TG1 Vice Chair: Mika Kasslin
IEEE 802.19 TG1 Secretary: Junyi Wang

# MEETING MINUTES

First session of the meeting was called to order by the TG1 chair Tuncer Baykas, Sept. 19, 2011 at 11:00 PM.

### APPROVE AGENDA

The Chair presented the agenda in 802.19-11/94r0.

M. Kasslin asked for Wednesday AM1 to give a presentation on different decision-making topologies. The chair scheduled accordingly.

H. Kang asked for a time slot to present on geo-location database issues of CEPT. The chair scheduled it in AM1 Tuesdays.

The agenda was updated to rev1 due to the above changes.

**Motion**

To approve the agenda in the Document 802.19-11/94r1.

Agenda approved with unanimous consensus.

### APPROVAL OF MINUTES FROM MAY MEETING

**Motion**

To approve the 802.19 TG1 July minutes in 802.19-11/85r0, and teleconference minutes in 802.19-11/87r0, 802.19-11/89r0, 802.19-11/93r0.

Moved by J. Wang

Seconded by M. Kasslin

Motion passed with unanimous consensus.

### IEEE IPR STATEMENT

The TG Chair informed the TAG about the IEEE patent policy and showed the set of 5 slides identified as “Highlights of the *IEEE-SA Standards Board Bylaws* on Patents in Standards” available at the IEEE PATCOM web site (<http://standards.ieee.org/board/pat/pat-slideset.ppt>). He directed the secretary to record the fact that this presentation was made in the minutes for the meeting.

* 11:20 PM – The Chair made a call for essential patents: No one came forwards with essential patent.

### 802.19 TG1 Opening Report

The chair presented opening report in 11/95r1.

The chair indicated in the group that we need to figure out the way of processing the comments. The chair also mentioned that our technique editor Jame Gilb will explain the procedure for the comment resolutions. He suggested to the group providing resolutions together with comments. If you have not resolutions for the comments, please state clearly about your comments.

S. Shellhammer indicated that we do not have to solve all the comments in this f2f meeting.

R. Gloger: Do you plan to take the same version for the next review. No. All the resolved comments will be reflected in a new version for the next review, the chair answered.

R. Gloger: Are new features going to include. If the group decided to have, they will be put in the draft. S. Shellhammer: In order to do so, we need to have clear and specific solutions for comments so that they are clear enough for us to vote.

### Monday PM1

Tuncer

### Monday PM2

The TG chair called the meeting to order at 4:00PM

Continue comment resolutions.

Comment 55: To be discussed based on the material.

Comment 56: N. Sato: It means exiting TVBD channel on each available channel.

Comments 65, 66: Resolution Accepted. Closed.

T.Bakyas would like to have motion for all the resolved comments, so that we know clearly which are done. He indicated to the group that we need to decide whether we need to vote at each day or vote at the end of the week.

The chair suggested one motion at the end of week, for only comments with full supports.

Comment 110 and 124: Agreed

Comment 111: TBD

Comment 113: Wait for James Gilb

Comment 115: Resolution Accepted. Closed.

Comment 6 and 127:

H. Kang provided solution in Document 98/r0. I. Reede: CM is logic entity, why do we need to care whether they are inter- or intra- CM neighbours. M. Kasslin: we have agreed ealier to allow CM to do discovery for those CM to register itself without using CDIS services. M.Kasslin agree to do some wording to clarify it.

Comment 14: N. Sato provided explanation. M. Kasslin: It is not clear what protection target is. Since solution still have some objection, the chair requested to have further discussions offline.

Comment 154: Resolution Accepted. Closed.

Comment 67: Principal. Delete the paragraph and bullets.

Comment 63: N. Sato provided the solution. M. Kasslin disagree on it. He provided some editorial comments to the solution. N. Sato indicated that the sentence provided here was just a clarification. The chair disagreed and explained that we need to have clear instruction to the editor. The comment is still open.

Comment 61: N. Sato provided the definitions. It is suggested to put definitions in section 2. M. Kasslin believed that it is just for this paragraph not everywhere. S. Fillin supported. To be discussed.

Comment 62: N. Sato provided the definitions. M. Kasslin disagreed on the resolution and amended that Reference point is the area we have to provide; Target TVBD is the TVBD itself. Relation between these two shall be clarified. To be discussed.

Comment 60: N. Sato provided the definitions. I. Reede: In-block and out-of-block shall be clarified.

I. Reede suggested putting incumbent protection into informative annex. N. Sato objected it, and emphasized that the incumbent protection is not the only aim of the algorithm.

The comment is open.

The session recessed at 6PM

### Tuesday AM2

The chair called the meeting to order at 10:35AM

**Neighbours and Neighbour Discovery in the Document 802.19- 11/100r0 presented by M. Kasslin, Nokia**

S.Shellhammer: Neighbor is a symmetric word, does your neighbour concept is a symmetric or not. M.Kassin: It depends, we have 3 categories: Source, Victim and Mutual.

J. Kwak: The term “Neighbour” was misused. We should use neighbour in a normal way. We should define an area, TVBD finds neighbour in that area. And then calculate possible interference in that area. M. Kasslin agreed.

I.Reede suggested using “source” instead of “Neighbour”

R.Gloger: you may have two categories of neighbours: interfere or potential interfere.

Y. Yi: Is main intention of this neighbour discovery the channel allocation? M. Kasslin: To provide CM a set of TVBD who are using coexistence systems.

Y. Yi: will location information be exchanged. M. Kasslin: NO.

I.Reede: We need two kinds of neighbour lists: source list and victim list. M.Kasslin: exactly as what we have .

S.Filin questioned the meaning of the sentence that “measurement reports shall not be used to update neighbour sets”. M. Kasslin explained that we cannot have a clear and good measurement, it may not be reliable to update neighbour sets

R. Gloger: Can list of potential neighbour be change or is it fixed? M. Kasslin: it is fixed and will not be changed by the environment information.

H. Kang: May the neighbour you find be the real interfering source or victim. M. Kasslin: It might be.

I.Reede: The behaviour after receiving neighbour list should also be set.

H. Kang: Why do we need measurement? M. Kassin: for coexistence decision making.

J. Kwak suggested changing the registration information in a particular area rather than just a neighbour information. M. Kasslin: Not ready to provide that.

**The session recessed at 0:20 PM**

### Tuesday PM1

The chair called the meeting to order at 1:32PM

**Consultation on a Policy and Technical Framework for the Use of Non-Broadcasting Applications in the Television Broadcasting Bands Below 698 MHz in the Document 802.18-11/72r0 was presented by J. Wang, NICT**

The group proposed to have a discussion on this in teleconference, and run electric ballot to approve the comment if there is any comment from the group.

I.Reede requested to confirm with the 802.18 chair whether they need to finalize the comments in this week. J. Wang agreed.

**Geo-location database issue in Document 802.19-11/99r0 was presented by Donghun Lee, ETRI.**

**Comment resolutions:**

Comment 32, 33, 132: D. Lee provides resolution to change subtitle. The group disagreed the resolution and requested to change “announcement” to “indication”.

Comment 114 and 119: J. Gilb summaried the syntax of ASN.1 for data type definitions. S.Filin summarized directions for data type definitions as follows:

* SAP primitives data type definition: more general definition
* Message data type definition: ASN.1 data type definition + ranges + message encoding (e.g. BER or TLV or mix)

The chair made a call for any objections to above two directions. None made.

S. Filin withdrew comment 113, 114, 119 and 120 .

I. Reede compared channel classification in 802. 22 with one defined in 802.19

Meeting recessed 3:30PM

### Tuesday PM1

### Wednesday AM1

Meeting was called to order at 8:05AM

 **Comment resolutions in the Document 802.19-11/105r0 was presented by J. Wang, NICT**

Comment 125: Open. The group suggested summarying all confusing terms and change them all together.

Comment 126: Open

Comment 130: Closed. The group decided to changed the current “information service” into “Info-exchange service”

Comment 131: The proposed resolution was accepted. Closed.

Comment 134: open.

Comment 137: Closed with proposed resolution.

Comment 139 was withdrawn by the commenter.

Comment 136 Closed. Change BER into FER.

The updated document 802.19-11/105r2 including the refelction to he comment from the group was uploaded into the mentor.

The meeting recessed 9:50AM

### Wednesday AM2

The chair called the meeting to order 10:35AM

Since 802.18 group wants to finalize the comments to consultation from Industry Canada in this week, the group decided to propose comments in this session for the document “Consultation on a Policy and Technical Framework for the Use of Non-Broadcasting Applications in the Television Broadcasting Bands below 698 MHz”.

**The meeting recessed at 0:10PM**

### Wednesday PM1

Meeting called to order 1:35PM

The group continued discussion on Canadian consultation. The comment proposal for Canadian consultation was documented as follows:

**6-1 Comments are sought on the benefits that could be expected from making white space**

**available in Canada. See Page 8, Paragraph 1**

First and foremost, we would like to commend Industry Canada for considering the license-exempt usage of Television Whitespaces (TVWS). License-exempt usage is the key driver that enables state-of the art services to be delivered to the masses, it results in innovation and economies of scale as a consequence, helps to keep the costs in check.

IEEE 802 is currently developing a number of standards that intend to provide opportunistic wireless communications services in the TV bands (WSD operation) and also a standard to enable coexistence between heterogeneous and independently operated white space devices. Making the current spectrum license-exempt will greatly help the deployment of these standards based technologies.

The IEEE 802.19.1 standard project on Coexistence in the TV white space was initiated in January 2010. Because TV white space devices are licensed-exempt there is a possibility that incompatible TV white space networks could cause interference to one another. The IEEE initiated the 802.19.1 standard project to develop a standard to improve coexistence between various TV white space networks. The project has developed a preliminary draft of the standard and is in the process of refining the draft as part of the standards development process. The preliminary draft utilizes the unique characteristics of TV white space networks which include at least one node in the network that has geo-location capability and Internet access. The preliminary draft leverages the geo-location capability of some of the TV white space devices to identify neighbouring TV white space networks, through the IEEE 802.19.1 coexistence discovery and information server. The 802.19.1 preliminary draft includes specifications for the coexistence manager that provides recommendations, to the various TV white space networks, on how to reconfigure the networks to improve coexistence between the neighbouring TV white space networks.

**6-2 Comments are sought on the benefits of the above-mentioned innovation to manage**

**interference. Spectrum sensing and Hybrid database approach?**

The key goal of the IEEE 802.19.1 standard is to improve coexistence of secondary users in WS. It proposes several methods to fulfil this goal. But possible applications are not limited to secondary users coexistence. In particular, one method currently considered is based on calculation of aggregated interference from several secondary users. This service provided by the IEEE 802.19.1 system may be also used for additional protection of primary users.

**6-3 Comments are sought on the above proposed approach of setting technical standards now with respect to database dependent systems, and developing standards with respect to spectrum sensing devices when that technology has matured.**

The IEEE 802.19.1 standard needs to obtain information on available channels for the WSDs it servers. The IEEE 802.19.1 standard relies on TVWS DB to obtain this information. Two ways are considered. One is via WSDs and another is directly. Spectrum sensing is not considered in 802.19.1.

**6-4 Comments are sought on these proposed provisions related to database performance and operation. Would these provisions provide sufficient capability to respond to interference cases or other problems that might occur once the white space devices are in use? Are there any additional provisions that Industry Canada should adopt?**

Instead of setting periodical access to TVWS DB, we believe that using validity period for available channel information is more efficient way. However, validity period shall correspond to real operation of broadcasters and shall not be artificially short. No additional provisions are seen.

**6-5 Comments are sought on the above categories**

Above categories are well defined.

**6-6 Comments are sought on these proposals.**

We have no comments at this time.

**6-7 Comments are sought on the above proposal to broadly harmonize technical rules with those in the United States. Considering the potential benefits of such harmonization, are there areas where Canada should consider variations from the U.S. technical rules?**

Although having harmonized technical rules may be desired, there are certain aspects that can be included which will enable wider and safer deployments of WSDs.

For example, spectrum mask should be relaxed. Furthermore Industry Canada should reconsider incumbent protection and limit it to the co-channel and the first immediate adjacent channels. Protection in the first immediate channels should not be required for mobile devices.

**6-8 Comments are sought on the interference protection criteria for TV broadcasting operations. Are the provisions in Table 6.2 adequate to ensure the protection of over-the-air TV broadcasting services? Should provision be made for white space devices using power control to have additional flexibility in selecting frequencies, as has been proposed in the United Kingdom?**

We support the idea of Industry Canada to put some intelligence in the database service that can take as an input, the device capability (e. g. Transmission mask) and geolocation and allow for variable power so as to allow for appropriate separation and avoid adjacent channel interference.

**6-9 Comments are sought on the potential for improvements to the policy and technical framework for RRBS, including the possibility of moving to a licence-exempt regime, leveraging white space technology.**

We do not support transferring light licence to incumbent status. Incumbent status conveys protection far exceeding that of light licence in as much as precludes new comers from obtaining equivalent status. We believe white space spectrum should not have any kind of first-come-first- serve privileges and the fact of having a light licence before regulation changes should not provide any form of acquired right.

**6-10 Should Industry Canada identify specific spectrum for use by LPA? If so, how much should be identified and should the operation of licence-exempt LPA be restricted to this spectrum?**

The IEEE 802.22 WG believes that identifying a dedicated spectrum for wireless microphone operation is a good idea. We recommend that channel allocation for LPAs be carried out based on the type of market and in the manner to free as many as possible channels for WS licence-exempt operations. .

**6-11 Comments are sought on the options for the authorization of LPA in Canada. Provide justification for this choice of option.**

We believe that Option 1 is synonymous with granting amnesty to un-authorized microphone users. Option 2 has been recommended in the United States rules but there are issues with stable availability of white space channels. We do not support Option 3 since that will result in license-exempt microphones operating on all possible channels and where WSDs and microphones will suffer from mutual interference. Option 4 is a new concept where LPAs will become new Whitespace Devices may be considered in future.

Hence, out of all the options, we support the idea of Option 5 as the safest option.

**6-12 If option 1, 2 or 5 is chosen, comments are sought on the proposal to collect “time and location of use” data based on voluntary registration and the proposal that eligibility to register for such protection be open to all users of LPA. Comments are also sought on the appropriate protection criteria to protect LPA from interference from white space devices.**

We believe that Option 1 is synonymous with granting amnesty to un-authorized microphone users. Option 2 has been recommended in the United States rules but there are issues with stable availability of white space channels. We do not support Option 3 since that will result in license-exempt microphones operating on all possible channels and where WSDs and microphones will suffer from mutual interference. Option 4 is a new concept where LPAs will become new Whitespace Devices may be considered in future.

Hence, out of all the options, we support the idea of Option 5 as the safest option.

**6-13 Comments are sought on the above proposals. Should provisions for flexible out-of-band masks, similar to the U.K. rules, also be included? Is there a need for additional measures on adjacent channels to protect systems operating at the edge of the TV bands?**

We support the idea of including flexible out-of-band masks to protect systems operating on adjacent channels.

**6-14 On balance, do the potential benefits of permitting licence-exempt white space devices to operate in Canada outweigh their potential risks to other services?**

The IEEE 802.19 Working Group strongly supports the Industry Canada’ s move to harmonize their rules, so as to allow license-exempt operation in the TVWS. License-exempt usage is the key driver that enables state-of the art services to be delivered to the masses, it results in innovation and economies of scale as a consequence, helps to keep the costs in check. Furthermore, adherence to the upcoming 802.19.1 standard will minimize any such risk.

**7-1 Comments are sought on these proposed modifications to the Canadian Table of Frequency Allocations.**

We have no comments at this time.

**8-1 Comments are sought on whether the measures of the FCC to protect Canadian licensees are adequate and whether Industry Canada’s proposed measures are adequate to protect U.S. licensees, including TV broadcasters. Provide supporting arguments for your**

response.

We have no comments at this time.

**Motion**

To change agenda by rescheduling Thursday AM1 for comment resolutions.

Motion passed with unanimous concern.

**Comment resolutions**

Comment 28,29, 30 were withdrawn by the commenter.

Comment 162, Principal resolve as indicated in 11/96r1 and 97r0

Meeting recessed 3:08PM

### Thursday AM1

The TG chair made a call for any objections to the agenda change to suspend TG1 for 5 minutes. No objections.

The chair called the meeting to order 8:10AM

**Comment resolutions**

**Comment Resolutions regarding to Intra-CM and Inter-CM Neighbour Definitions in the Document 801.19-11/98r1 was presented by H. Kang, ETRI.**

Comments 6, 10, 127 are still opened for discussions.

**Coexistence discovery terminology in the Document 802.19-11/107r1was presented by M. Kasslin, Nokia**

Y. Yi: it is better to separate naming portion and technique portion. M. Kasslin: NO. They are connected.

Y. Yi: Chapter 9 should not be mandatory. M. Kasslin: We need to get the same output for neighbour discovery algorithm. One way to do that is to use the same neighbour discovery algorithm. But we are not clear that every algorithm shall be followed.

J. Wang: Whether to mandate the algorithms or not completely depends on the algorithm itself. Neighbour discovery algorithm is definitely important.

N. Sato: The term “user” is not proper, it is like physical entity. M. Kasslin: that is why we use the term “coexistence system user” instead of “user” only.

N. Sato: We need to clarify what is coexistence set and coexistence list. M. Kasslin: If it is two step neighbour discoveries, we use coexistence set, otherwise coexistence list.

Y. Yi: How to do neighbour discovery is a separated problem. M. Kasslin agreed.

H. Kang: Can we have different coexistence decision making algorithm. M. Kasslin. YES. Then can we have multiple neighbour discovery algorithms. M. Kasslin: NO. I. Reede: Object and said that we can have multiple algorithms.

H. Kang: we do not need to limit algorithm into one. M. kasslin: If we can have the same message structure, we may have different algorithms.

**Gabor Bajko gave an introduction for the status of database design in IETF.**

### Thursday AM2

The chair called the meeting to order 10:40AM

**Comment-resolution-CID-41-47-94-239-243 in the document 802.19-11/109r0 was presented by Yunjung Yi, LG**

Comment 41 closed. However the text to describe Master CM selection is to be decided.

J. Kwak: Additional complexity for master CM selection is unnecessary. If all information is exchanged between CMs and all CMs have the same decision algorithm, they have no conflict. I .Reede agreed.

M. Kasslin: we should stop discussions on topics we have ready agreed.

Comment 47 Rejected.

Comment 94: Open.

Comment 239: was withdrawn by the commenters.

Comment 243: Closed with the proposed resolutions.

The document was updated to 802.19-11/109r2.

**J. Gilb made a call for sub-editor. If anyone would like to do the job as the sub-editor, send mail to him.**

The session recessed at 11:45AM

### Thursday PM1

The session called to order 1:35 PM

**Comment resolution 98r1 presented by H. Kang, ETRI**

Comments 6, 10, 127 were withdrawn

The “Neighbour” should be defined before this definition, however we have to rename term “neighbour” before define it. So it is not too helpful to define them. The commenter therefore withdraw the comments.

Comment resolutions regarding to CIDs 71 in the document 802.19-11/111r0 was presented by H. Kang, ETRI

Comment 71: close with solution suggested in 111r0

The session recessed at 2:20PM

### Thursday PM2

The TG chair called the meeting to order at 4:03PM

There were some discussions on whether Comment 115 has been closed or not. The chair checked the comment sheet, the secretary checked the minutes. Both of the results showed that the comment 115 has been closed.

However, some participants wanted to open the comment 115 again.

There were some discussions on whether we need to open the comment again or not.

**Motion**

To approve all comment response in 11/91r05 to be applied to Candidate draft standard P802.19-1-DF0 except resolution stated for CID 115.

Moved by S. Shellhammer

Seconded by: I. Reede

Yes 14 No 0 Abstain 1

Motion passed.

Discussion on motion

J. kwak: Do we mean if the motion approved we will give instructions to editors to update draft? T.Baykas YES

**Motion**

To approve comment response for CID 115 in 11/91r05 to be applied to the candidate draft standard P802-19-1-DF0

Moved by: I. Reede

Seconded by: H. Kang

YES 6 NO 10 Abstain 1

Motion failed.

**Motion**

To start the 2nd Task Group Review ballot of Candidate draft standard P802-19-1-DF0 with condition that it is first applied with the resolution in document 19-11/091r5 except the resolution for CID 115 and any necessary editorial changes.

Moved by I. Reede

Seconded by H. Kang

Motion passed with unanimous consensus.

**Motion**

To adjourn the TG Okinawa interim sessions

Motion passed with unanimous consensus.

The TG Okinawa interim session adjourned at 5.55 PM