IEEE P802.19

Wireless Coexistence

Abstract

These are unofficial minutes of the 802.19 TVWS Study Group activities. These are provided per request of SG members for information purposes only. Accuracy is not guaranteed and official minutes will be issued separately.

The secretary does request that any inaccuracies noted in these minutes be reported to him.

**Notice:** This document has been prepared to assist IEEE 802.19. It is offered as a basis for discussion and is not binding on the contributing individual(s) or organization(s). The material in this document is subject to change in form and content after further study. The contributor(s) reserve(s) the right to add, amend or withdraw material contained herein.

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| Unofficial Minutes of the 802.19 TVWS SG |
| Date: 2009-09-22 |
| Author(s): |
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**Monday, PM2 Session**

Meeting called to order by Chair at 4:01pm

Meeting moved to a different room and reconvened at 4:07pm

**1. Approve Study Group Agenda: 4:07pm**

Chair outlined proposed changes to the agenda which focuses the discussion on a topic by topic. Alex R. and Joe K. spoke in favor. No objections raised. Modified agenda reviewed.

Chair also pointed that he needs a TAG vote on the PAR and proposed the last 1 hour of the last session (Thu. PM1) for that discussion and vote.

Discussion of all modifications: Joe K. proposed adding a discussion on timing/schedule constraints for the group to be aware of such. 10 Minutes proposed and added to agenda.

Chair asked if anyone is opposed to approval. Agenda rev. 3 is approved.

**2. IEEE IPR Statement: 4:16pm**

Chair reviewed the IEEE’s IPR policy. Chair issues a call for potentially essential patents. No respondents to the call.

Chair reviewed other Guidelines for IEEE WG Meetings.

**3. Approve Minutes from July Study Group Meetings: 4:20pm**

Chair noted that that minutes (doc 52r0) were posted in July. Victor H. noted that his name is missing from minutes. Minutes approved with the modification adding Victor H.’s name without objection.

**4. Approve Minutes from Last Conference Call: 4:21pm**

Postponed as the minutes are not yet posted.

**5. PAR-related Schedule Constraints and Requirements: 4:21 pm**

Joe K. outlined what information he would like the chair to overview. Chair overviewed the timing of when the group has to complete the PAR for the PAR to be reviewed and available for approval by the EC in November. Important points:

* PAR and 5Cs must be approved by October 12.
* This required SG approval (75% of those present)
* Following SG approval it requires TAG approval (75% of voting members present).

Joe K. followed up asking about how we can address feedback to the PAR after October 12. Chair overviewed what may happen with comments. Pertinent points:

* Requirement to have all comments back by 5pm Tuesday week of plenary.
* It is unlikely that too many comments will come in much earlier.
* The group has effectively 24 hours to turn around comments, which have to be addressed by Wed 5pm. This means that the SG will likely have a lot of time scheduled on Wednesday for November plenary.

Marianna pointed out that TAG quorum may not be required for approval in this meeting due to a change in rules. Chair will investigate and report back to the group.

Chair will also confirm the timeline during the week of the plenary and report back to the group.

**6. Discussion of the Scope: 4:31 pm.**

Presentation by Marc Cummings - draft PAR (doc 0060, rev.3). Marc noted that there have been no objections to Title to date. He asked for objections. None raised.

Title as approved by the group is: *Standard for TV White Space Coexistence Mechanisms*

Marc C. moved on to the discussion of scope.

Joe K. overviewed his comments to the PAR as posted in doc 0073 rev. 0. Discussion and Q&A followed.

Marianna presented her comments as distributed on the reflector. Discussion and Q&A followed.

General discussion and Q&A not based on posted comments followed.

Steve S. presented his comments on the scope as posted on doc. 0068, rev. 0 Discussion and Q&A followed.

General discussion and Q&A not based on posted comments followed.

Mark C. proposed a different mode of operation for the group where contributions are made and discussion follow only after all contributions made. Vice Chair asked for a show of hands on the proposal. Interactive (standard) mode of operation continues to be the method of operation.

Group proceeded to scope proposals leading to strawpolls on wording.

Straw Poll #1

The standard specifies mechanisms for coexistence amongst 802 networks and devices, using different radio technologies ~~which use dissimilar radio technologies~~ and ~~may also be~~ being deployed by different operators ~~operated independently~~ on common TV White Space Frequency Bands.

Yes 2

No 10

Abstain 12

Straw Poll #2

The standard specifies mechanisms for coexistence amongst networks and devices, which use dissimilar radio technologies ~~and~~ or may also be operated independently on common TV White Space Frequency Bands.

Yes 9

No 4

Abstain 15

Straw Poll #3

The standard specifies mechanisms for coexistence ~~amongst networks and devices, which use dissimilar radio technologies and may also be operated independently on common~~ among dissimilar or independently operated networks and among dissimilar devices in the TV White Space Frequency Bands.

Yes 11

No 3

Abstain 10

Straw Poll #4

The standard specifies mechanisms for coexistence amongst unlicensed networks and devices, which use dissimilar radio technologies and may also be operated independently on common TV White Space Frequency Bands.

Yes 9

No 5

Abstain 14

Review of strawpoll results followed. This was followed by a new strawpoll to downselect one of the options.

Straw poll: which option do you prefer. Vote for no more then 1:

Preferred Straw Poll

#1 0

#2 4

#3 17

#4 2

Based on the straw poll results, it appeared to the group that proposal #3 mad most sense as the baseline for discussion.

**MOTION**

To confirm the following text for the Scope,

*“The standard specifies mechanisms for coexistence among dissimilar or independently operated networks and among dissimilar devices in the TV White Space Frequency Bands.”*

Move Joe

Second Alex

**Motion to amend**

Add “secondary” in front of “networks” and “devices”

Move Wendong

Second Yong Hong

Yes 2

No 10

Abstain 11

**Motion fails**

**Motion to amend**

Add “The standard will also specify enabling mechanisms allowing the mandatory detection of devices, as required by regulations”

Move Mariana

Second

**Motion to amend,**

Drop the second occurrence of the phrase “*among dissimilar”*

Motion Kursat

Second Mark

Yes 7

No 3

Abstain 15

**Motion fails**

**Original Motion**

Yes 12

No 6

Abstain 9

**Motion fails**

**Session recessed at 6:00 pm**

**Tuesday PM2 Session**

Meeting called to order by the chair at 4:08pm

**1. Discuss and review agenda 4:08pm**

Chair presented agenda.

**2. Discussion on adding additional meeting rooms 4:09 pm**

Proposal to add additional timeslots Wed PM2 and Thu AM2. Straw poll: who wants:

Wed PM2: 3

Thu AM2: 0

Both: overwhelming

**3. Discuss on having an ad-hoc to try and work on the PAR 4:12**

Discussion followed. It was decided that no separate ad-hoc is needed.

**4. Finalizing the scope 4:14 pm**

Chair opened discussion with the failed motion from Mon. AM2 meeting. Discussion with proposed modifications followed. Some discussion centered around whether TVBD or WSD is the right term. Quick straw poll was TV Band Devices (TVBD):8; White Space Devices (WSD) :3.

**MOTION**

To confirm the following text for the Scope,

*“The standard specifies mechanisms for coexistence among dissimilar or independently operated TV Band Device (TVBD) networks and dissimilar TV Band Devices.”*

Move Joe K.

Second Mika

Yes 16

No 0

Abstain 0

**Motion passed**

**5. Discuss and Agree on Purpose: 4:29 pm**

Chair displayed the purpose as it is currently written in the contribution 0060 rev. 3. Discussion with proposed modifications followed. Original purpose and modifications noted below:

**ORIGINAL PURPOSE**

The purpose of the standard is to enable the family of IEEE 802 Wireless Standards to most effectively use TV White Space by providing standard coexistence mechanisms. This standard addresses coexistence of IEEE 802 networks and devices and will also be useful for non IEEE 802 networks and devices in TV White Space.

**MODIFIED PURPOSE**

The purpose of the standard is to enable the family of IEEE 802 Wireless Standards to ~~most~~ effectively use TV White Space by providing standard coexistence mechanisms among dissimilar or independenlty operated TVBD networks and dissimilar TVBDs. This standard addresses coexistence for IEEE 802 networks and devices and will also be useful for non IEEE 802 networks and TVBDs.

**MOTION**

To confirm the following text for the Purpose,

*“The purpose of the standard is to enable the family of IEEE 802 Wireless Standards to ~~most~~ effectively use TV White Space by providing standard coexistence mechanisms among dissimilar or independently operated TVBD networks and dissimilar TVBDs. This standard addresses coexistence for IEEE 802 networks and devices and will also be useful for non IEEE 802 networks and TVBDs.”*

Move Alex

Second Mark

Yes 19

No 0

Abstain 2

**Motion passes**

**6. Discuss and Agree on Need: 4:41pm**

Chair displayed the purpose as it is currently written in the contribution 0060 rev. 3. Discussion with proposed modifications followed. Numerous modifications proposed. After prolonged discussion, there was a proposal to attempt to approve at least pieces of the Need via motions on partial text. Original need is presented for reference and then the motions are minuted.

**ORIGINAL NEED**

Existing IEEE 802 standards groups are developing standards to comply with the regulatory rules for accessing TV White Space. Mechanisms that allow these standards to coexist are needed. The work proposed here will result in standard overlay mechanisms that allow these different 802 standards to coexist in TV White Space. It will also seek to allow coexistence with other well established non IEEE 802 wireless standards.

**MOTION** to add “and amendments” in the first sentence

Move Mark

Second Alex

Yes 17

No 0

Abstain 4

**Motion passes**

**MOTION** to approve the first two sentences including the adopted changes above. The sentences are:

*Existing IEEE 802 standards groups are developing standards and amendments, to comply with the regulatory rules for use of TV white space. Other non-IEEE 802 wireless standards for use of the TV white space are also in development.*

 **Motion approved with no objections.**

**MOTION** to delete the proposed last sentence as given below

*Coordinated silence periods may be needed for the detection of wireless microphones.*

Move Mark

Second Kursat

Yes 13

No 2

Abstain 5

**Motion passes**

**MOTION** to approve the following sentence,

*In order to minimize interference in the TV white space bands standardized coexistence mechanisms are needed.*

Move Mark

Second Ivan

**Motion to amend**,

Replace “minimize interference in” with the words “enhance utilization of”

Move Tom

Second Ivan

**Motion approved with no objections**

**Motion to amend**,

After “bands” insert “use of” and after “standardized” insert “coordinated”

Move Garth

Second Kursat

Yes 9

No 6

Abstain 4

**Motion fails**

**Returning to the original motion which has now been modified to:**

**MOTION** to approve the following sentence,

*In order to enhance utilization of the TV white space bands standardized coexistence mechanisms are needed.*

**Motion approved with no objections**

**MOTION**  to delete the following sentence in its entirety

*~~Coordinated use of the~~ Standardized coexistence mechanisms specified in this standard enhances the use of TV white space ~~which enhance the other TV white space standards~~ is needed.*

Move Ivan

Second Garth

Yes 12

No 4

Abstain 0

**Motion passes**

**MOTION** to approve the following sentence

*Mechanisms such as those discussed in the explanatory notes may be considered.*

Move Ivan

Second Tuncer

**Motion approved with no objections.**

**MOTION** to approve the full need which now stands as follows

*Existing IEEE 802 standards groups are developing standards and amendments, to comply with the regulatory rules for use of TV white space. Other non-IEEE 802 wireless standards for use of the TV white space are also in development. In order to enhance utilization of the TV white space bands standardized coexistence mechanisms are needed. Mechanisms such as those discussed in the explanatory notes may be considered.*

 Move: Joe K.

Second <none>

**Session recessed at 6:00 pm**

**Wednesday PM1 Session**

Meeting called to order by the Chair at 1:34pm

**1. Discussion of modified agenda 1:34**

Chair presented modified agenda and asked for objections to modifications. None noted. Agenda modifications accepted with no objections.

**2. Finalize Need text: 1:37 pm**

Secretary displayed the need text as it stood at the end of the day yesterday.

**MOTION** to delete text indicated below as crossed out and to insert text as highlighted in red.

*Existing IEEE 802 standards groups are developing standards and amendments, to comply with the regulatory rules for use of TV white space. Other non-IEEE 802 wireless standards for use of the TV white space are also in development. ~~In order to enhance utilization of the TV white space bands standardized coexistence mechanisms are needed.~~ There is a need to ensure efficient spectrum sharing across multiple TVBD networks and TVBDs. Mechanisms such as those discussed in the explanatory notes may be considered.*

Moved: Mika

Second: Mark

Following discussion, friendly amendment proposed by Ivan to have new Need read as follows.

*Existing IEEE 802 standards groups are developing standards and amendments, to comply with the regulatory rules for use of TV white space. Other non-IEEE 802 wireless standards for use of the TV white space are also in development. It is in the best interest of users and the industry to strive for a level of coexistence between wireless systems in the TVWS bands. There is a need to ensure efficient spectrum sharing across multiple TVBD networks and TVBDs. TAG19 TVWS provides mechanisms for coexistence between systems. One approach is a common coexistence mechanism that may be used by other TVWS systems; other approaches are also possible. Mechanisms such as those discussed in the explanatory notes may be considered.*

Friendly amendment rejected back to the original PAR.

Proposal from Joe K. to table the motion before the SG

Straw poll on the proposal to table the motion by Mika/Mark: overwhelming support to table.

**Motion tabled.**

Group moved on to discussion of an alternate need proposal as shown below. This proposal adds the text in red to the text the baseline as of the end of the Tuesday PM2 session. The proposed additions are shown in red. The group proposed further changes, as shown with crossout (deletions) and additions (blue). Except as noted in the straw polls below, all had overwhelming support.

*Existing IEEE 802 standards groups are developing standards and amendments, to comply with the regulatory rules for use of TV white space. Other non-IEEE 802 wireless standards for use of the TV white space are also in development. In order for these various dissimilar TVBD networks and devices to effectively coexist in ~~this shared~~ sharing the TVWS spectrum, ~~coordinated~~ collaborative use of coexistence mechanisms is needed. This collaboration among dissimilar TVBD networks and devices uses the coexistence mechanisms provided in this standard. In order to enhance utilization of the TV white space bands standardized coexistence mechanisms are needed. Mechanisms such as those discussed in the explanatory notes may be considered.*

Chair put a time limit on discussion of Need – discussion of Need to end at 2:35pm

Group moved on to discussion of the disputed issues of the language related to the term “shared spectrum”.

Straw poll: who supports the word “shared:” FOR: 4; AGAINST: 4

Straw poll: who support the word “sharing:” FOR: 8; AGAINST: 2

The wording following straw polls is shown above.

**MOTION** to adapt the text below as the Need (without the changes indicated, which are a result of accepted friendly amendment)

*Existing IEEE 802 standards groups are developing standards and amendments, to comply with the regulatory rules for use of TV white space. Other non-IEEE 802 wireless standards for use of the TV white space are also in development. In order for these various dissimilar TVBD networks and devices to effectively coexist in ~~sharing~~ the shared TVWS spectrum, collaborative use of coexistence mechanisms is needed. This collaboration among dissimilar TVBD networks and devices uses the coexistence mechanisms provided in this standard. In order to enhance utilization of the TV white space bands standardized coexistence mechanisms are needed. Mechanisms such as those discussed in the explanatory notes may be considered.*

Move: Joe

Second: Ivan

Discussion followed. Victor T. made a friendly amendment to the effect above (deletions crossed out, additions are in red). Amendment accepted

YES: 8

NO: 4

ABSTAIN: 3

**Motion Fails**

Further discussion on the need followed.

**MOTION** to adapt the text below as the Need

*Existing IEEE 802 standards groups are developing standards and amendments, to comply with the regulatory rules for use of TV white space. Other non-IEEE 802 wireless standards for use of the TV white space are also in development. In order for these various dissimilar TVBD networks and devices to effectively coexist in the TVWS spectrum, collaborative use of coexistence mechanisms is needed. This collaboration among dissimilar TVBD networks and devices uses the coexistence mechanisms provided in this standard. In order to enhance utilization of the TV white space bands standardized coexistence mechanisms are needed. Mechanisms such as those discussed in the explanatory notes may be considered.*

Move: Alex

Second: Ivan

YES: 13

NO: 0

ABSTAIN: 2

**Motion passes.**

**MOTION to bring previously tabled motion back on the table.**

Move: Mika

Second Mark

**Motion passes with no objections.**

**Returning to the previously tabled MOTION by Mika/Mark we have**

Motion to adapt the following as the Need

*Existing IEEE 802 standards groups are developing standards and amendments, to comply with the regulatory rules for use of TV white space. Other non-IEEE 802 wireless standards for use of the TV white space are also in development. There is a need to ensure efficient spectrum sharing across multiple TVBD networks and TVBDs. Mechanisms such as those discussed in the explanatory notes may be considered.*

**Motion withdrawn by mover and seconder.**

**Previously adapted Need stands. This is repeated below for reference:**

*Existing IEEE 802 standards groups are developing standards and amendments, to comply with the regulatory rules for use of TV white space. Other non-IEEE 802 wireless standards for use of the TV white space are also in development. In order for these various dissimilar TVBD networks and devices to effectively coexist in the TVWS spectrum, collaborative use of coexistence mechanisms is needed. This collaboration among dissimilar TVBD networks and devices uses the coexistence mechanisms provided in this standard. In order to enhance utilization of the TV white space bands standardized coexistence mechanisms are needed. Mechanisms such as those discussed in the explanatory notes may be considered.*

**3. Similar Projects Discussion: 2:38pm**

Discussion on similar standards and projects opened.

Chair put a discussion limit to stop at 3:10pm.

 For reference, group requested to see all standards listed in the 802.11 TVWS PAR proposal. Section 7.1 of the 802.11 TVWS PAR proposal is copied below for reference:

Explanation: IEEE P802.22 addresses one product segment of the new regulatory rules. Sponsor Organization: IEEE
Project/Standard Number: P802.22
Project/Standard Date: 0000-00-00
Project/Standard Title: Draft Standard for Wireless Regional Area Networks Part 22: Cognitive Wireless RAN Medium Access Control (MAC) and Physical Layer (PHY) specifications: Policies and procedures for operation in the TV Bands

Explanation: IEEE P1900.4a addresses mobile wireless access in white space frequency bands

Sponsor Organization: IEEE
Project/Standard Number: P1900.4a
Project/Standard Date: 0000-00-00
Project/Standard Title: Amendment: Architecture and Interfaces for Dynamic Spectrum Access Networks in White Space Frequency Bands

Explanation: Ecma International is standardizing communications in Television White SpacesSponsor Organization: Ecma International
Project/Standard Number: TC48-TG1
Project/Standard Date: 0000-00-00
Project/Standard Title: Wireless Communications using Television White Spaces (TVWS).

Discussion followed and resulted in the changes as noted above (insertions in red, deletions are crossed out and order changed so that IEEE P1900.4a is listed first).

Explanation: IEEE P1900.4a is a standards project which addresses dynamic spectrum access networks in the white space frequency bands. ~~mobile wireless access in white space frequency bands~~

Sponsor Organization: IEEE
Project/Standard Number: P1900.4a
Project/Standard Date: 0000-00-00
Project/Standard Title: Amendment: Architecture and Interfaces for Dynamic Spectrum Access Networks in White Space Frequency Bands {TITLE TO BE FIXED TO BE CORRECT}

Explanation: IEEE P802.22 is a MAC/PHY standards project for operation in the TVWS which ~~may~~ includes coexistence mechanisms. ~~addresses one product segment of the new regulatory rules.~~Sponsor Organization: IEEE
Project/Standard Number: P802.22
Project/Standard Date: 0000-00-00
Project/Standard Title: Draft Standard for Wireless Regional Area Networks Part 22: Cognitive Wireless RAN Medium Access Control (MAC) and Physical Layer (PHY) specifications: Policies and procedures for operation in the TV Bands

Explanation: Ecma International TC48-TG1 is a MAC/PHY standards project for operation in the TVWS which ~~may~~ includes coexistence mechanisms. ~~is standardizing communications in Television White Spaces~~Sponsor Organization: Ecma International
Project/Standard Number: TC48-TG1
Project/Standard Date: 0000-00-00
Project/Standard Title: Wireless Communications using Television White Spaces (TVWS).

**MOTION:** To adopt the above (corrected) text as Section 7.1 of the proposed 802.19 TVWS PAR with the additional editorial change listing the correct full title of the IEEE P1900.4a project. The correct full text is provided below for reference.

*Explanation: IEEE P1900.4a is a standards project which addresses dynamic spectrum access networks in the white space frequency bands.*

*Sponsor Organization: IEEE
Project/Standard Number: P1900.4a
Project/Standard Date: 0000-00-00
Project/Standard Title: Standard for Architectural Building Blocks Enabling Network-Device Distributed Decision Making for Optimized Radio Resource Usage in Heterogeneous Wireless Access Networks - Amendment: Architecture and Interfaces for Dynamic Spectrum Access Networks in White Space Frequency Bands*

*Explanation: IEEE P802.22 is a MAC/PHY standards project for operation in the TVWS which includes coexistence mechanisms.*

*Sponsor Organization: IEEE
Project/Standard Number: P802.22
Project/Standard Date: 0000-00-00
Project/Standard Title: Draft Standard for Wireless Regional Area Networks Part 22: Cognitive Wireless RAN Medium Access Control (MAC) and Physical Layer (PHY) specifications: Policies and procedures for operation in the TV Bands*

*Explanation: Ecma International TC48-TG1 is a MAC/PHY standards project for operation in the TVWS which includes coexistence mechanisms. Sponsor Organization: Ecma International
Project/Standard Number: TC48-TG1
Project/Standard Date: 0000-00-00
Project/Standard Title: Wireless Communications using Television White Spaces (TVWS).*

Mover: Joe

Seconder: Alex

YES 14

NO 1

ABSTAIN: 2

**Motion passes**

**Meeting recessed at 3:11 pm with the agreement to reconvene at 3:40.**

**Meeting called to order at 3:45 pm.**

**4. Discussion of Explanatory Notes: 3:45 pm**

Chair establishes a time limit on this discussion of 5:00 pm

Opening discussion on history of existing text. Followed by motion below,

**MOTION** to delete the following text from the explanatory notes as these exist in 0060r3.

An **Etiquette** is a set of rules for ‘polite’ behavior by radios. It can involve elements, which facilitate coexistence, such as periodic silence periods and listen before talk algorithms. As such, it can play a role in the above.

The Standards will first address implementations under the USA FCC TV White Space Rules and as a follow on consider if and how modifications need to be made to function under other regulatory regimes.

The term “dissimilar” used in this document refers to the networks and devices, which use different radio technologies adapted for TV White Space Frequency Bands.

The term “independently operated” used in this document refers to the fact that even similar (from radio technology point of view) networks and devices may be operated by independent entities, which do not necessarily have a business relationship for coordinating their use of TV White Space Frequency Bands. For example, this differentiates independently operated from a situation in which a single administrative authority manages the coexistence between dissimilar technologies deployed in a composite network.

Mover: Mark

Second: Hyun

YES: 2

NO: 8

ABSTAIN: 3

**Motion fails**

Further discussion resulted in a proposal to review explanatory notes paragraph-by-paragraph. Additional proposal made to use the text in 73r0 as a baseline for how the paragraphs are to be ordered, but keeping the original text of 0060r3 as a baseline.

Straw poll on whether to use 0060r3 as a baseline to 0073r0 as a baseline.

 0073r0: 6

 0060r3: 2

Group proceeds to use 0073r0 as a baseline for paragraph order. 0073r0 uses track changes to show the original text and modifications made by authors of 0073r0. However the original text is based on 0060r2. Group proceeds to use both 0073r0 and 0060r2 as required.

**MOTION** to adopt the following text as an explanatory note in Ref. to PAR Section 5.2 (Scope)

*The term “dissimilar” used in this document refers to the networks and devices, which use different radio technologies adapted for TV White Space Frequency Bands.*

Move: Joe

Second: Ari

YES: 13

NO: 0

ABS: 0

**Motion passes.**

**MOTION** to adopt the following paragraph a further explanatory note in Ref. to PAR Section 5.2 (Scope)

*The term “independently operated” used in this document refers to networks which may or may not use the same radio technology but are operated by independent entities which do not necessarily have a business relationship for coordinating their use of TV White Space Frequency Bands; furthermore, such similar radio access technologies may not have an otherwise available means of coexistence. For example, this differentiates independently operated from a situation in which a single administrative authority manages the coexistence between dissimilar technologies deployed in a composite network.*

Move: Alex

Second: Mark

YES: 12

NO: 0

ABS: 0

**Motion passes**

Document 0073r0 shows a paragraph (the “blue paragraph”) added to 0060r2 which is not present in 0060r2 or 0060r3. Groups discussion on whether this paragraph needs to be discussed.

Straw poll: address the blue paragraph #3 in the 73

 Yes: 4

 No: 2

 Abs:3

Straw poll results in agreement for further discussion.

**MOTION** to further discuss the “blue paragraph” as shown below:

*This standard project will address USA FCC TV White Space Rules and may address the TV White Space rules of other regulatory domains. During the project lifetime, the draft standard will be modified to address any new or changing regulatory White Space Rules.*

Move: Mark

Second: <none>

Discussion on the “blue paragraph” follows. Group runs out of time with no conclusion and chair moves the discussion to the next paragraph.

**Motion** to adopt the following as an explanatory paragraph Ref to PAR Sec. 5.5 (Need):

*The radio technology independent coexistence mechanisms that ~~will be~~ are standardized ~~will~~ may address the following and related areas:*

Move: Joe

Sec. Mika

Friendly amendment by Alex as noted above (insertions in red, deletions crossed out). Amendment accepted as friendly by mover and seconder.

YES: 7

NO: 0

ABSTAIN: 3

**Motion passes.**

Group moves on to the discussion of the paragraph on Discovery in 0060r3. Starting point of the discussion provided below for reference.

Discovery is the process of determining that there are two or more dissimilar and independently operated wireless networks or devices desiring to use the same White Space frequency in the same location. This can occur in two ways. The two networks or devices may attempt to enter at the same time or one may be present and a second seek to enter. In the second case, a network operating in White Space, must periodically check for new entrants and a new entrant must check before entering. An etiquette may be helpful in this process.

**Motion**: to delete last sentence from the Discovery paragraph as show above.

Mover: Alex

Seconder: Mark.

No discussion follows and no objection is raised.

**Motion passes with no objection.**

**MOTION** to adopt the following as a further explanatory paragraph Ref to PAR Sec. 5.5 (Need):

***Discovery*** *is the process of determining that there are two or more dissimilar and independently operated wireless networks or devices attempting to use the same White Space frequency range in the same location. This can occur in two ways. The two networks or devices may attempt to enter at the same time or one may be present and a second seek to enter. In the second case, a network operating in White Space, must periodically check for new entrants and a new entrant must check before entering.*

Mover: Mika

Second: Tuncer

Friendly amendment as noted above (insertion in red) accepted by Mover and Seconder

Yes 13

No 0

Abstain 0

**Motion passes**

Chair extended discussion on explanatory notes to 5:20.

**MOTION** to adopt the following as a further explanatory paragraph Ref to PAR Sec. 5.5 (Need):

*A* ***Connection*** *for Coexistence is necessary for two dissimilar and independently operated wireless networks or devices to exchange information in order to collaboratively share spectrum.*

Move: Alex

Second: Tuncer

**Motion passes with unanimous consent**

**MOTION** to adopt the following as a further explanatory paragraph Ref to PAR Sec. 5.5 (Need):

*A* ***Logical Mechanism*** *for Promoting Coexistence is a mechanism that involves the exchange of information between different dissimilar or independently operated networks or devices and may also involve algorithms seeking to maximize the quality of service for all participants.*

Move: Joe

Second: Ivan

**Motion passes with unanimous consent**

Discussion on the last 2 paragraphs of the explanatory notes in 0060r3 (referencing etiquette) resulted in no motions on these. Consequently no text related to these two paragraphs will appear in the PAR.

Noting that the group still had time, discussion returned to the discussion of the “blue paragraph”

**MOTION** to adopt the following as a further explanatory paragraph Ref to PAR Sec. 5.5 (Need):

*This standard project ~~will~~ addresses USA FCC TV White Space Rules and may address the TV White Space rules of other regulatory domains. During the project lifetime, the draft standard ~~will be~~ modifies~~d~~ to address any new or changing regulatory White Space Rules.*

Move: Joe

Second: Ivan

Discussion – friendly amendment by Alex as noted above (insertions in red, deletions crossed out) accepted by Mover/Seconder.

Y: 2

No: 4

Abs: 3

**Motion fails.**

Chair gave the group further extension to 5:25 to continue discussion on explanatory notes.

**MOTION** to adopt the following as a further explanatory paragraph Ref to PAR Sec. 5.2 (Scope):

*The term “TVBD” refers to the FCC defined term. A TV Band Device (TVBD) is a device that operates under the rules to allow unlicensed radio transmitters to operate in the broadcast television spectrum at locations where that spectrum is not being used by licensed services.*

Move: Joe

Sec. Ivan

Friendly amendment proposed by Alex to delete all but first sentence. Not acceptable to the mover.

Y: 3

N: 2

A: 6

**Motion fails.**

**5. Discussion of 5C’s: 5:29 pm**

Presentation by Tuncer on the 5C proposal. Discussion of the proposal and 5C’s followed.

**Meeting recessed at 6:00 pm.**