IEEE P802.11
Wireless LANs

|  |
| --- |
| Minutes of the March 2023 meeting of the IEEE 802.11 Coexistence Standing Committee |
| Date: 2023-04-03 |
| Author(s): |
| Name | Affiliation | Address | Phone | email |
| Guido R. Hiertz | Ericsson GmbH | Ericsson Allee 151234 HerzogenrathGermany |  | hiertz@ieee.org |

Abstract

This document contains the minutes of the March 2023 meeting of the IEEE 802.11 Coexistence Standing Committee.

Location: Hiton Atlanta, 255 Courtland Street, Atlanta, GA 30303, USA

1. At 2023-03-15T16:01-04:00 the chair of the IEEE 802.11 Coexistence Standing Committee (SC) calls the meeting to order. Marc Emmelmann acts as appointed chair of the SC. Guido R. Hiertz acts as recording secretary of the SC.
2. The chair presents 11-23/254r1 that contains the proposed agenda of the meeting. At this time, 11-23/254r1 is identical to 11-23/254r0. The latter is stored on Mentor server. The former will contain any modifications that may arise out of this meeting.
3. At 2023-03-15T16:06-04:00 the chair presents the motion on page 3 of 11-23/449r1:
	1. “Move to approve Coex SC agenda as contained in 11-23/0253r1.”
		1. Moved: Guido R. Hiertz
		2. Seconded: Rich Kennedy
	2. Approved by unanimous consent.
		1. Request for approval of the Coex SC January 2023 interim meeting minutes 11-23/214r0 included in consent agenda motion.
		2. January interim meeting minutes approved by adoption of the consent agenda.
4. At 2023-03-15T16:07-04:00 the chair reviews 11-23/448r1. The chair concludes presenting 11-23/448r1at 2023-03-15T16:09-04:00 and continues reviewing 11-23/449r1 from page 9.
5. At 2023-03-15T16:09-04:00 the chair presents the motion on page 12 of 11-23/449r1:
	1. “Move to elect Richard Kennedy as Coex SC Vice Chair.”
		1. Moved: Al Petrick
		2. Seconded: Guido R. Hiertz
		3. At 2023-03-15T16:11-04:00 attendees discuss the motion.
			1. Comment: We need to find a balance between different technologies. I don’t think it is ideal not to have another candidate. If the current chair cannot chair then there might be contentious topics that involve Bluetooth and thus, this nomination is not ideal.
			2. Comment: I am happy to have a motion for a second vice chair.
			3. Comment: I have been with IEEE 802.11 for many, many years. This is an individual contributor function. Yes, I have a connection with Bluetooth technology but I represent myself in any activity of IEEE 802.11.
			4. Comment: I would like to nominate myself for second vice-chair.
			5. Comment: There will be more than one vice-chair. So, this motion is in order. Afterwards, we can make a motion for second vice chair.
	2. At 2023-03-15T16:15-04:00 Rich is elected by unanimous consent.
6. At 2023-03-15T16:16-04:00 the chair presents the following motion:
	1. “Move to elect Manish Kumar [NXP] as Coex SC Vice Chair.”
		1. Moved Sai Nandagopalan
		2. Seconded: Guido R. Hiertz
	2. At 2023-03-15T16:18-04:00 Manish is elected by unanimous consent.
7. At 2023-03-15T16:19-04:00 the chair continues presenting from page 14 of 11-23/449r1. At 2023-03-15T16:21-04:00 an attendee makes a comment.
	1. Comment: Is this just coexistence with Bluetooh or anything more specific?
	2. Comment: This is coexistence specific to future Bluetooth.
8. At 2023-03-15T16:22-04:00 Guido R. Hiertz provides a verbal update about work conducted at ETSI TC BRAN.
	1. ETSI TC BRAN approved submitting EN 303 687 for second ENAP. Instead of a 60 d ENAP recirculation a second 90 d ENAP was used because ETSI TC BRAN did not only resolve ENAP but also HASTAC related comments.
	2. Furthermore, ETSI TC BRAN approved a second HASTAC review and an initial ENAP for EN 303 753.
	3. ETSI TC BRAN approved that both Harmonised Standards, EN 303 687 and EN 303 753, are to undergo editorial by ETSI’s editHelp! service.
	4. Because of a lack of consensus related to the HS’s Energy Detection Threshold (EDT) clause, ETSI TC BRAN did not initiate ENAP for EN 301 893.
9. At 2023-03-15T16:27-04:00 the chair explains that work on IEEE 802.15.6ma and IEEE 802.15.4ab also relates to the SC’s scope.
	1. Comment: There will be joint IEEE 802.15.6 and IEEE 802.15.5ab meetings. Anyone can join. IEEE 802.11 members are welcome to participate.
	2. Comment: Shall we just monitor or be active?
	3. Comment: So far, nobody volunteers or sees the need to engage.
	4. Comment: They are both wireless technologies in IEEE 802. Shouldn’t this coexistence be studied in IEEE 802.19?
	5. Comment: Certainly, we could go either way. My preference is to have the discussions between IEEE 802.11 and IEEE 802.15, directly. If we need to go with IEEE 802.19 we can do this in future.
	6. Comment: IEEE 802.15.4ab is ongoing. They know that they have to have a coexistence assessment document. IEEE 802.19 will review this document.
10. At 2023-03-15T16:33-04:00 Richard Kennedy presents 11-23/240r0. At 2023-03-15T16:44-04:00 Rich concludes his presentation.
	1. Comment: Does the BT SIG plan some simulations?
	2. Comment: There is every intention to do study coexistence in the most collaborative way we can.
	3. Comment: What kind of metrics will you use for coexistence? Is there any preference for 5 GHz or 6 GHz?
	4. Comment: We are also looking for 5 GHz in the upper part. The 6 GHz will take longer. There is more study to do here. We have people who will do this.
	5. Comment: What metric do you think is good?
	6. Comment: We need to figure this out between the two of us.
11. At 2023-03-15T16:49-04:00 Menzo Wentink presents 11-23/453r0. At 2023-03-15T17:15-04:00 Menzo concludes his presentation.
	1. Comment: Could you explain about the clash on EN 301 893?
	2. Comment: Yes, there was a disagreement about EDT in this band.
	3. Comment: Can you just say based on these simulations that this is the best solution?
	4. Comment: I worked on these simulations for long time and received feedback. I am not just saying that this is the only way to go.
	5. Comment: I don’t think they are so worried about LBT. Regulatory requirements aside, I don’t think that BT wants to hop over 500 MHz. They just want to hop over 40 MHz. Thus, Wi-Fi could puncture its transmissions.
	6. Comment: What happens if there is Wi-Fi?
	7. Comment: Wi-Fi could detect this and puncture its channel. You are looking at one AP and you fill it up and assume that BT hops over 500 MHz. I am just picking a number, e. g. to give 80 MHz to BT and then this could be avoided. It would be a simpler solution.
	8. Comment: On slide 20, could you clarify why we don’t see the number of active hops, here?
	9. Comment: Here, LBT is applied and then this would be almost like a straight line at 125. I decided to not define this for this experiment.
	10. Comment: How much is needed by Bluetooth by your prediction?
	11. Comment: This is all being looked at and being discussed. We are working on this.
	12. Comment: Can you explain the details of BT in this simulation?
	13. Comment: There are six BT links and one Wi-Fi link.
	14. Comment: There are some things we need to come back to look at. In a typical Wi-Fi scenario, you would have ten clients. Then, you see similar issues in access. This could be an important study. There is no priority to any technology in Europe. It’s on equal basis. We should consider this in coex studies.
	15. Comment: How would this change if Wi-Fi was VLP?
	16. Comment: I don’t know. I need to run this as separate simulation. If NB FH does not defer, then I am afraid that Wi-Fi would get no throughput.
	17. Comment: FBE duration is 1 ms to 10 ms. What did you assume?
	18. Comment: 6.25 ms.
	19. Comment: Do you have an idea how the number of NB FH devices impacts the results?
	20. Comment: It gets better with less NB FH devices.
	21. Comment: How prone are you to the number of NB FH devices?
	22. Comment: I could simulate this. It gets harder if there are more links. Every link needs to evacuate the 160 MHz channel. I am speculating that Wi-Fi could not get any access.
	23. Comment: The traffic assumption is full buffer for all sources. You will see less effects for other traffic sources.
	24. Comment: Yes.
	25. Comment: In the simulator, do you simulate that you could have successful reception even if there are concurrent transmissions or collisions?
	26. Comment: I could look up what is happening. If NB FH is transmitting, their packets go though because there is sufficient SINR. The Wi-Fi receiption is wiped out.
12. At 2023-03-15T17:30-04:00 Menzo Wentink presents 11-23/454r0. He concludes his presentation at 2023-03-15T17:34-04:00.
	1. Comment: A Wi-Fi packet cannot survive BT interference in this environment.
	2. Comment: If you have 15 dB difference it is okay. Otherwise, not.
	3. Comment: Did you determine the impact of Wi-Fi transmissions on BT?
	4. Comment: No. We are just testing Wi-Fi as victim.
	5. Comment: There is no frequency hopping?
	6. Comment: Yes.
	7. Comment: Do you do LBT, here?
	8. Comment: No, it’s without LBT.
	9. Comment: If you receive the BT signal with −50 dBm you should backoff.
	10. Comment: This power level is so high, if the AP was in the ceiling you would need to climb up.
	11. Comment: I believe it is very good that they adapted AFH. That’s my conclusion.
	12. Comment: We picked a 2 m distance in 8 GHz.
	13. Comment: They want to increase the ranging distance in IEEE 802.15. UWB and NB FH would be initiator and receiver. So, they could combine the USB and NB FH signals and correlate in IEEE 802.15.4ab.
	14. Comment: Generally, there was good support in IEEE 802.15. This was all PHY layer testing. Many in IEEE 802.15 thought that duty cycle in this measurement is really low.
	15. Comment: The NB signal is −50 dBm. So, there is 20 dB of SINR. Why is this cliff here?
	16. Comment: There is just fixed MCS in use.
	17. Comment: In real life there would be link adaptation. It’s not clear if that makes things better or worse.
13. At 2023-03-15T17:40-04:00 Menzo Wentink presents 11-23/455r0. At 2023-03-15T17:43-04:00 he concludes his presentation.
	1. Comment: It seems rather obvious. Why did you have to do this?
	2. Comment: I was just curious.
	3. Comment: Here, you focus on the AP side. Do you believe it is the same with the BT device being close to a Wi-Fi device?
	4. Comment: In November, Jeff from Carleton universaity presented similar results and used different APs. He inserted NB FH signals at different power levels. He could show that the behavior was different for different APs using different APs. I would suggest not to select just one AP, one chipset, and one test level.
	5. Comment: I did not want to burden the lab with more work. I just picked what we have. I don’t want to extrapoloate. The result is in line with what we expected. I agree that this should be expanded.
	6. Comment: It should be observed what happens at −72 dBm. I don’t trust my expectations, anymore.
	7. Comment: It could still defer at low power. We don’t know.
14. At 2023-03-15T17:47-04:00 the chair presents page 20 of 11-23/449r1.
	1. Comment: Do you expect updates for next meeting?
	2. Comment: I don’t have an outlined plan. But there will be feedback. I am in contact with other parties. By the time the next meeting comes there will be new stuff to show.
15. At 2023-03-15T17:50-04:00 the chair declares the meeting adjourned.