

IEEE 802 Coexistence Study Group

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Docs on: \\mars\Documents\Coexistence - Vancouver

Agenda for Wednesday

Review:

- Problem statement**
- Purpose**
- Scope**
- Coexistence definition**

Discussion of operating rules

Discussion of Coexistence criteria

Goals for Vancouver meeting

- Review SEC conference calls
 - Review “final” problem statement, purpose, and scope
 - Motion will be made on Friday to create TAG
 - Definition of coexistence
 - Start work on policy and procedure

SG/TAG Tasks

- Develop Mission Statement (SG ongoing)
- Statement of scope & purpose (Recommend to ExCom how IEEE 802 should address coexistence in existing and future specs) (SG ongoing)
- Definition of coexistence (TAG)
- Summary of current standards where coexistence is an issue (TAG)
- Recommendations to SEC (SG July Plenary)
- Summary and report (SG July Plenary)

Problem Statement

Activities of IEEE 802 Working Groups frequently involve use of the same physical medium for communication. In particular, several Working Groups are defining or have defined Standards that use the same portions of the frequency spectrum. In these cases, disagreements can occur regarding the extent to which devices conforming to a particular 802 standard are permitted to affect the operation of devices built to other standards (whether 802 standards or otherwise). At the moment, there is no common understanding within 802 as to the appropriate responsibilities of the developers of new standards to ensure coexistence with existing and future standards.

Purpose Statement of TAG Activities

The Coexistence TAG will develop and maintain policies defining the responsibilities of 802 standards developers to address issues of coexistence with existing standards and other standards under development. It will also, when required, offer assessments to the SEC regarding the degree to which standards developers have conformed to those conventions. The TAG may also develop coexistence documentation of interest to the technical community outside 802.

Scope of TAG Activities

The IEEE 802 Coexistence Technical Advisory Group (TAG) is responsible to recommend and maintain the IEEE 802 policy regarding coexistence among implementations of IEEE 802 and other standards. While the primary tool for implementing such a policy shall be the Working Group Letter Ballot process, the TAG shall, when requested by a Working Group running a ballot, assist with the resolution of comments related to coexistence. It shall also be authorized to issue reports and recommendations to the SEC regarding impending SEC actions in which coexistence may be a concern. The Coexistence TAG may also develop and maintain IEEE Standards (either Recommended Practices or Guides) to foster coexistence within the communications industry, provided that such work is done under an approved PAR. The Coexistence TAG may recommend additional activities consistent with its Purpose Statement, subject to approval by the SEC.

Coexistence Definition

- **Coexistence:** Until such time as “coexistence” may be more formally defined by the TAG, the informal definition shall be “the ability of one system to perform a task in a given shared environment in which other systems have an ability to perform their tasks and may or may not be using the same set of rules.”

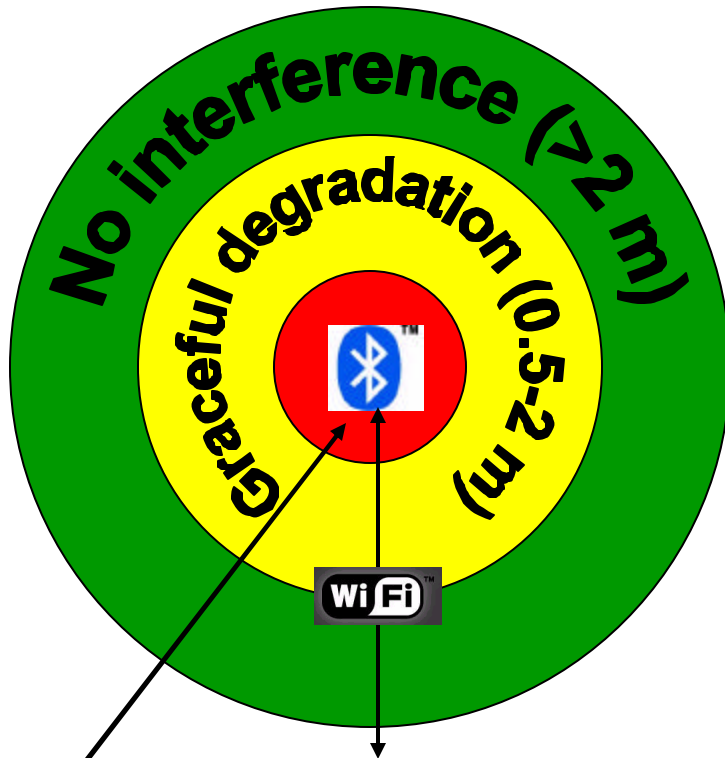
Operating rules discussion

- Propose to follow 802.18's lead
 - Participation from 11/15/16 is important!
 - Joint credit for attendance
 - Attendees at first meeting (November) will gain automatic voting status
 - After that, normal WG voting rules apply

Coexistence Criteria

- “Coexistence link budget” has been suggested
 - xx dB in link budget allocated to interference
 - This should be the SIR to achieve a tolerable degradation, such as 10%
 - Usage model dependent
 - “zone of coexistence”

Example: 11b/Bluetooth zones



- For separation >0.5 m:
 - Throughput improves until 100% @ 2 m
 - Voice quality suffers w/o AFH inside 2 m
- For separation <0.5 m:
 - Significantly reduced throughput
 - Voice quality can be poor
 - Non linear effects may occur
 - Front end compression (blocking)
 - Reciprocal mixing (intermods)

Significant degradation (<0.5 m)

Wrapup

- Problem statement, Purpose, and Scope have been agreed to by stakeholders in SEC
 - Thanks for your feedback here.....
- Motion will be made in Friday SEC meeting to create TAG
- Work ready to begin on policies and procedures
- Your help is needed to make the TAG a successful group!

Backup

Q&A from Sydney

Q&A #1

- Will this group try to “quantify” coexistence?
 - Not likely – coexistence depends on so many variables (geometry, power, etc.) that defining a number that says whether you have achieved it or not isn’t practical. **Suggestion for WLAN/WPAN was made that no more than 10% degradation at 0.5 meters is a possible goal.**
- What will this group do then?
 - We (IEEE 802) currently don’t have a policy for addressing coexistence; that’s first. This policy will address the ground rules for analyzing the degradation two systems cause to each other (or pairs of systems for multiple standards).

Q&A #2

- How would this work?
 - The TAG first defines policy. For example, the policy might be to say a WG needs to pick some usage models and determine the degradation due to a set of other approved standards, pairwise. We want to examine most likely scenarios, not corner cases, which may give pathological results.
- So how would you know if two systems “coexist”?
 - The TAG is an advisory group to SEC; analysis using the usage models would be used by WGs and SEC to make informed decisions. This is a similar concept to the FCC’s OET. So the answer is that the TAG procedures will either convince voters that a Recommended Practice is needed, or that a draft has no coexistence issues and can proceed to further balloting. SEC needs to make sure coexistence is taken seriously or inter-WG squabbling may increase.

Q&A #3

- Does the TAG play a role other than formulating policy?
 - Possibly. The current thinking is that the COEX TAG develops a definition of coexistence and a policy to guide WG's analysis of coexistence. Beyond that, the TAG may be called upon to help resolve coexistence conflicts by writing an independent report when a draft is submitted to SEC, but this has not been agreed upon. **The TAG should be comprised of representatives from all the wireless WGs for balance.**
- What about participation and voting?
 - A TAG is governed by the same attendance and voting rules as WG's, but the specifics are not finalized.

Q&A #4

- Doesn't this need to have involvement with R-REG?
 - R-Reg deals with governmental bodies; Coex works inside IEEE 802. Several standards in the unlicensed bands are perfectly legal, but do not coexist well.
- What about drafts in process today?
 - There are three cases: Approved standards, TG drafts at various points in the approval process, and future PARs. This TAG can address future PARs, but we need a short term solution for drafts in process. Approved standards are another issue.