IEEE P802.11  
Wireless LANs

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| CID 3579 Resolution - ACI | | | | |
| Date: 2019-January-14 | | | | |
| Author(s): | | | | |
| Name | Affiliation | Address | Phone | email |
| Alecsander Eitan | Qualcomm |  |  | eitana@qti.qualcomm.com |
| Assaf Kasher | Qualcomm |  |  | akasher@qti.qualcomm.com |
| Solomon Trainin | Qualcomm |  |  | strainin@qti.qualcomm.com |

Abstract

This submission proposes resolutions of comment 3579 received from TGay LB234.

The resolutions are in reference to Draft IEEE P802.11ay/D2.1 and IEEE 802.11-2016.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 3579 |  |  | DMG is missing adjacent channel rejection (ACR) requirements | As far as commenter can tell, all 802.11 PHYs have defined adjacent channel rejection (ACR) requirements, except DMG; define ACR requirements and decide applicabiliy. Suggested applicabiliy is to make the ACR requirements mandatory for all EDMG (covering channel bonding and agregation combinations), mandatory for DMG devices operating in TDD mode, and recommended for remaining DMG devices. |

**Discussion:**

Most PHYs in 802.11 have ACI specifications, only DMG doesn’t.

The ACI was discussed in May 2018 meeting, doc 18/0777r0.

Defining a good ACI specification for 60GHz (DMG and EDMG) is more challenging for 60GHz PHY than for sub 6GHz PHYs:

* The beamforming is analog and various architectures are used. High ACR (adjacent channel rejection) impose challenging and architectures dependent requirements on the analog combiner.
* RF technology is very challenging for commercial mmWave and therefore the receiver dynamic range is very limited. The channel filtering is usually performed in Low-IF or Base-Band. High ACR (above few dB) require proportional DR increase.
* The beamforming is analog and therefore the ACR is sector (AoA) dependent.
* Some DMG/EDMG devices are designed for short range communication, where expected received signal is very high and therefore low ACR (relative value) is sufficient.
* Some DMG/EDMG devices are designed to use high gain beamforming and very narrow beams. In this case the device can overcome ACI by using the beamforming, thus low ACR is sufficient.

A mild value, which we may agree to, is significantly different than the ARC values presented in 18/0777r0.

FCC doesn’t have such requirement, while ETSI (EN 302 567) requires 2dB (ACI stronger than wanted signal by 2dB, tested in boresight only).

It is clear that high end stations, like stations supporting TDD mode and used in distributed netweorks, may have a good ACR. Hence it is suggested to add such ACI requirement to the vendor specific requirements.

**Proposed resolution**: Reject