

# AN ACCESS POINT AND A COMMUNICATION METHOD FOR FACILITATING SCHEDULING OF COMMUNICATION FOR COMMUNICATION APPARATUSES SUSCEPTIBLE TO INTERFERENCE

## BACKGROUND

### Technical Field

The present disclosure generally relates to at least one Access Point (AP) for facilitating communication in association with one or more communication apparatuses which can be susceptible to interference. The present disclosure further relates to a communication method in association with the AP(s).

### Description of the Related Art

Typically, it is not unexpected for interference to occur within a communication system. In the event of interference, integrity of communication in the communication system can be adversely impacted.

Solutions have been contemplated for the purpose of mitigating interference and restoring communication integrity within a communication system.

The present disclosure contemplates that there is a need for alternative solution(s) directed at mitigating interference.

## SUMMARY

In one aspect, the present disclosure refers to an access point (AP) comprising:

- circuitry, which in operation, reserves a subset of an operating frequency bandwidth for a group of communication apparatuses susceptible to interference when operating within the operating frequency bandwidth, and schedules, based on the reserved subset of the operating frequency bandwidth, communication in association with at least one communication apparatus in the group of communication apparatuses; and
- a transmitter, which in operation, transmits information of the reserved subset of the operating frequency bandwidth;

wherein the circuitry is configured to generate transmission timing information associated with the group of communication apparatuses, and wherein the transmitter is configured to transmit the transmission timing information to the another AP.

In another aspect, the present disclosure refers to a first AP comprising:

- a receiver, which in operation receives information of a reserved subset of an operating frequency bandwidth from a second AP, and
- circuitry, which in operation, at least one of:

schedules, based on the received information, communication of at least one communication apparatus in a group of communication apparatuses susceptible to interference due to communication associated with the operating frequency bandwidth, ~~and~~

adjusts transmit power of signals, to be transmitted from the first AP, associated with the reserved subset of the operating frequency bandwidth;

- a transmitter, which in operation, transmits a request signal to the second AP; wherein the circuitry is configured to generate a request signal to the second AP, requesting the second AP to communicate, to the first AP, information corresponding to a record of transmissions, for a preceding transmission period, associated with the second AP, and
- wherein the receiver is configured to receive, from the second AP, information corresponding to the record of transmissions.

In yet another aspect, the present disclosure refers to a communication method comprising reserving a subset of an operating frequency bandwidth for a group of communication apparatuses susceptible to interference when operating within the operating frequency bandwidth, scheduling, based on the reserved subset of the operating frequency bandwidth, communication in association with at least one communication apparatus in the group of communication apparatuses, ~~and~~ transmitting information of the reserved subset of the operating frequency bandwidth, generating transmission timing information associated with the group of communication apparatuses, and transmitting the transmission timing information to the another AP.

Non-limiting and exemplary examples facilitate scheduling of communication apparatus(es) for mitigating interference.

In an example, the techniques disclosed here feature an access point (AP).

The AP can include circuitry, which in operation:

- reserves a subset of an operating frequency bandwidth for a group of communication apparatuses susceptible to interference when operating within the operating frequency bandwidth, and
- schedules, based on the reserved subset of the operating frequency bandwidth, communication in association with at least one communication apparatus in the group of communication apparatuses.

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## CLAIM

1. An access point (AP) comprising:

circuitry, which in operation:

reserves a subset of an operating frequency bandwidth for a group of communication apparatuses susceptible to interference when operating within the operating frequency bandwidth, and

schedules, based on the reserved subset of the operating frequency bandwidth, communication in association with at least one communication apparatus in the group of communication apparatuses; and

a transmitter, which in operation, transmits information of the reserved subset of the operating frequency bandwidth;

wherein the circuitry is configured to generate transmission timing information associated with the group of communication apparatuses, and

wherein the transmitter is configured to transmit the transmission timing information to the another AP.

2. The AP according to claim 1,

wherein the reserved subset of the operating frequency bandwidth corresponds to at least one reserved resource unit (RU), and

wherein the transmitter is configured to transmit information of the at least one reserved resource unit to another AP.

3. The AP according to claim 1, further comprising:

a receiver, which in operation, receives information of another reserved subset of an operating frequency bandwidth communicated from another AP, and

wherein the circuitry is configured to consider the another reserved subset when reserving the subset of an operating frequency bandwidth for the group of communication apparatuses.

4. The AP according to claim 3, wherein the receiver is further configured to receive a request signal,

wherein based on the received request signal, the circuitry is configured to generate a record of transmissions, for a preceding transmission period, associated with the AP, and

wherein the transmitter is configured to transmit the record of transmissions to the another AP.

5. The AP according to claim 1,

wherein the transmitter is configured to transmit information of the reserved subset of the operating frequency bandwidth by manner of at least one of beacon frames and probe response frames.

~~6. The AP according to claim 1,~~

~~wherein the circuitry is configured to generate transmission timing information associated with the group of communication apparatuses, and~~

~~wherein the transmitter is configured to transmit the transmission timing information to the another AP.~~

67. The AP according to claim 1,

wherein the circuitry is configured to determine whether a communication apparatus in the group of communication apparatuses is susceptible to interference based on at least one report generated by the communication apparatus, the at least one report corresponding to at least one of a bandwidth query report and an interference report.

78. The AP according to claim 1,

wherein the circuitry is configured to determine whether a communication apparatus in the group of communication apparatuses is located at a fringe of an operating region associated with the operating frequency bandwidth based on one of:

estimated distance of the communication apparatus from the AP, and

at least one report indicative of signal strengths generated by the communication apparatus.

89. The AP according to claim 1, wherein the circuitry is configured to provide an estimate of interference impact based on transmission timing information associated with the group of communication apparatuses.

910. The AP according to claim 89, the group of communication apparatuses being divided into a plurality of sub-groups based on one of:

geographical location within an operating region associated with the operating frequency bandwidth, and

at least one report from at least one communication apparatus in the group of communication apparatuses concerning at least one measurement of at least one characteristic associated with at least one wireless signal communicated within the operating region.

5 1011. A first AP comprising:

a receiver, which in operation, receives information of a reserved subset of an operating frequency bandwidth from a second AP; ~~and~~

circuitry, which in operation, at least one of:

10 schedules, based on the received information, communication of at least one communication apparatus in a group of communication apparatuses susceptible to interference due to communication associated with the operating frequency bandwidth, and

adjusts transmit power of signals, to be transmitted from the first AP, associated with the reserved subset of the operating frequency bandwidth; ~~and~~

15 a transmitter, which in operation, transmits a request signal to the second AP;  
wherein the circuitry is configured to generate a request signal to the second AP, requesting the second AP to communicate, to the first AP, information corresponding to a record of transmissions, for a preceding transmission period, associated with the second  
20 AP, and

wherein the receiver is configured to receive, from the second AP, information corresponding to the record of transmissions.

~~12. The first AP according to claim 11 further comprising a transmitter, which in operation, transmits a request signal to the second AP,~~

25 ~~wherein the circuitry is configured to generate a request signal to the second AP, requesting the second AP to communicate, to the first AP, information corresponding to a record of transmissions, for a preceding transmission period, associated with the second AP, and~~

30 ~~wherein the receiver is configured to receive, from the second AP, information corresponding to the record of transmissions.~~

1113. A communication method comprising:

35 reserving a subset of an operating frequency bandwidth for a group of communication apparatuses susceptible to interference when operating within the operating frequency bandwidth;

scheduling, based on the reserved subset of the operating frequency bandwidth, communication in association with at least one communication apparatus in the group of communication apparatuses; ~~and~~

transmitting information of the reserved subset of the operating frequency bandwidth;

generating transmission timing information associated with the group of communication apparatuses; and

transmitting the transmission timing information to the another AP.

1214. The communication method according to claim 1113,

wherein the reserved subset of the operating frequency bandwidth corresponds to at least one reserved resource unit, and

wherein the information of the at least one reserved resource unit is transmitted to an access point.

1315. The communication method according to claim 1113, further comprising:

determining whether a communication apparatus in the group of communication apparatuses is located at a fringe of an operating region associated with the operating frequency bandwidth based on one of:

estimated distance of the communication apparatus from the AP, and

at least one report indicative of signal strengths generated by the communication apparatus.