[7] In a first aspect, the present disclosure provides a first sensing responder, comprising: a receiver, which, in operation, receives a sounding Trigger frame from a sensing initiator; and a transmitter, which, in operation, and in response to the sounding Trigger frame, transmits a Null Data Packet (NDP) to a second sensing responder.

[8] In a second aspect, the present disclosure provides a communication method performed by a first sensing responder, comprising: receiving a sounding Trigger frame from a sensing initiator; and transmitting, in response to the sounding Trigger frame, a Null Data Packet (NDP) to a second sensing responder.

[9] In a third aspect, the present disclosure provides a second sensing responder, comprising: a receiver, which, in operation, receives a sounding Trigger frame from a sensing initiator, and receives a Null Data Packet (NDP) from

a first sensing responder; and circuitry, which, in operation, performs, based on the sounding Trigger frame, sensing measurement on the NDP.

[10] In a fourth aspect, the present disclosure provides a communication method performed by a second sensing responder, comprising: receiving a sounding Trigger frame from a sensing initiator; receiving a Null Data Packet (NDP) from a first sensing responder; and performing sensing measurement on the NDP based on the sounding Trigger frame.

[11] In a fifth aspect, the present disclosure provides a

sensing initiator; comprising circuitry, which, in operation, generates a sounding Trigger frame which solicits a transmission of a Null Data Packet (NDP) from a first sensing responder to a second sensing responder; and a transmitter, which, in operation transmits the sounding Trigger frame to the first sensing responder and the second sensing responder..

[12] In a sixth aspect, the present disclosure provides acommunication method performed by a sensing initiator, comprising generating a sounding Trigger frame which triggers a transmission of a Null Data Packet (NDP) from a first sensing responder to a second sensing responder; and transmitting the sounding Trigger frame to the first sensing responder and the second sensing responder.

[12a] In a seventh aspect, the present disclosure provides an integrated circuit for a first sensing responder, comprising: at least one input, which, in operation, inputs an electronic signal; and control circuitry coupled to the at least one input, which, in operation, controls: receiving a sounding Trigger frame from a sensing initiator; and transmitting, in response to the sounding Trigger frame, a Null Data Packet (NDP) to a second sensing responder.

[12b] In an eighth aspect, the present disclosure provides an integrated circuit for a second sensing responder, comprising: at least one input, which, in operation, inputs an electronic signal; and control circuitry coupled to the at least one input, which, in operation, controls: receiving a sounding Trigger frame from a sensing

initiator; receiving a Null Data Packet (NDP) from a first sensing responder; and performing sensing measurement on the NDP based on the sounding Trigger frame.

[12c] In a ninth aspect, the present disclosure provides an integrated circuit for a sensing initiator; comprising at least one input, which, in operation, inputs an electronic signal; and control circuitry coupled to the at least one input, which, in operation, controls: generating a sounding Trigger frame which triggers a transmission of a Null Data Packet (NDP) from a first sensing responder to a second sensing responder; and transmitting the sounding Trigger frame to the first sensing responder and the second sensing responder.

[13] It should be noted that general or specific embodiments may be implemented as a system, a method, an integrated circuit, a computer program, a storage medium, or any selective combination thereof.

[14] Additional benefits and advantages of the disclosed embodiments will become apparent from the specification and drawings. The benefits and/or advantages may be individually obtained by the various embodiments and features of the specification and drawings, which need not all be provided in order to obtain one or more of such benefits and/or advantages.

BRIEF DESCRIPTION OF THE DRAWINGS

[15] Embodiments of the disclosure will be better understood and readily apparent to one of ordinary skilled in the art from the following written description, by way of example only, and in conjunction with the drawings, in which:

[16] Figure 1 depicts a schematic diagram illustrating a single-user (SU) communication between an access point (AP) and a station (STA) in a MIMO (multiple-input multiple-output) wireless network.

CLAIMS

1. A first sensing responder, comprising:

a receiver, which, in operation, receives a sounding Trigger frame from a sensing initiator; and

a transmitter, which, in operation, and in response to the sounding Trigger frame, transmits a Null Data Packet (NDP) to a second sensing responder.

2. The first sensing responder of claim 1, wherein the second sensing responder receives the sounding trigger frame from the sensing initiator.

3. The first sensing responder of claim 1, wherein the first sensing responder and the second sensing responder are non-access point stations and the sensing initiator is an access point.

4. The first sensing responder of claim 1, wherein:

the sensing initiator initiates a sensing procedure by transmitting a request frame, and the first sensing responder and the second sensing responder participate in the sensing procedure by responding to the sensing initiator;

the sensing procedure starts with a measurement setup phase which is followed by a Trigger Based (TB) sensing measurement instance;

the TB sensing measurement instance includes a Polling phase, a NDPA sounding phase, a Trigger Frame (TF) sounding phase and a Reporting phase; and

the request frame is transmitted in the measurement setup phase and the sounding Trigger frame is transmitted in the TF sounding phase.

5. The first sensing responder of claim 4, wherein the sensing initiator assigns a role for each of the first sensing responder and the second sensing responder by transmitting the request frame in the measurement setup phase.

6. The first sensing responder of claim 5, wherein the role is one of a sensing receiver, a sensing transmitter, and a sensing transmitter and sensing receiver.

7. The first sensing responder of claim 4, wherein the request frame includes a Sensing Measurement Parameters Element, the Sensing Measurement Parameters Element including a Collaborative Sensing Receiver subfield which is set to 1 to

indicate that the TB sensing measurement instance includes the transmission of the NDP from the first sensing responder to the second sensing responder.

8. The first sensing responder of claim 4, wherein the sensing initiator assigns a Measurement Setup ID to the first sensing responder and the second sensing responder by transmitting the request frame in the measurement setup phase, the Measurement Setup ID being used to identify the measurement setup phase.

9. The first sensing responder of claim 8, wherein the sounding Trigger frame comprises a Measurement Setup ID field and a Measurement Instance ID field, the Measurement Setup ID field indicating the Measurement Setup ID, and the Measurement Instance ID field indicating a Measurement Instance ID which identifies the TB sensing measurement instance associated with the measurement setup phase.

10. The first sensing responder of claim 1, wherein the sounding Trigger frame comprises a Trigger Type subfield, the Trigger Type subfield being set to “Sensing”.

11. The first sensing responder of claim 1, wherein the sounding Trigger frame comprises a Trigger Dependent Common Info field, the Trigger Dependent Common Info field comprising a Sensing Trigger Subtype field, the Sensing Trigger Subtype field indicating a subtype of the sounding Trigger frame.

12. The first sensing responder of claim 1, wherein the sounding Trigger frame comprises a first User Info field for the first sensing responder and a second User Info field for the second sensing responder.

13. The first sensing responder of claim 12, wherein the first User Info field includes a first role field which indicates a role for the first sensing responder and the second User Info field includes a second role field which indicates a role for the second sensing responder.

14. The first sensing responder of claim 13, wherein the second role field is set to 1 to indicate the role for the second sensing responder.

15. The first sensing responder of claim 1, wherein the sounding Trigger frame comprises a User Info field including an AID12 subfield set to 2008.

16. A communication method performed by a first sensing responder, comprising:

receiving a sounding Trigger frame from a sensing initiator; and

transmitting, in response to the sounding Trigger frame, a Null Data Packet (NDP) to a second sensing responder.

17. The communication method of claim 16, wherein the second sensing responder receives the sounding trigger frame from the sensing initiator.

18. A second sensing responder, comprising:

a receiver, which, in operation, receives a sounding Trigger frame from a sensing initiator, and receives a Null Data Packet (NDP) from a first sensing responder; and

circuitry, which, in operation, performs, based on the sounding Trigger frame, sensing measurement on the NDP.

19. The second sensing responder of claim 18, wherein the first sensing responder receives the sounding trigger frame from the sensing initiator.

20. A communication method performed by a second sensing responder, comprising:

receiving a sounding Trigger frame from a sensing initiator;

receiving a Null Data Packet (NDP) from a first sensing responder; and

performing sensing measurement on the NDP based on the sounding Trigger frame.

21. The communication method of claim 20, wherein the first sensing responder receives the sounding trigger frame from the sensing initiator.

22. A sensing initiator; comprising

circuitry, which, in operation, generates a sounding Trigger frame which solicits a transmission of a Null Data Packet (NDP) from a first sensing responder to a second sensing responder; and

a transmitter, which, in operation transmits the sounding Trigger frame to the first sensing responder and the second sensing responder.

23. A communication method performed by a sensing initiator, comprising

generating a sounding Trigger frame which triggers a transmission of a Null Data Packet (NDP) from a first sensing responder to a second sensing responder; and

transmitting the sounding Trigger frame to the first sensing responder and the second sensing responder.

24. An integrated circuit for a first sensing responder, comprising:

at least one input, which, in operation, inputs an electronic signal; and

control circuitry coupled to the at least one input, which, in operation, controls:

receiving a sounding Trigger frame from a sensing initiator; and

transmitting, in response to the sounding Trigger frame, a Null Data Packet (NDP) to a second sensing responder.

25. The integrated circuit of claim 24, wherein the second sensing responder receives the sounding trigger frame from the sensing initiator.

26. An integrated circuit for a second sensing responder, comprising:

at least one input, which, in operation, inputs an electronic signal; and

control circuitry coupled to the at least one input, which, in operation, controls:

receiving a sounding Trigger frame from a sensing initiator;

receiving a Null Data Packet (NDP) from a first sensing responder; and

performing sensing measurement on the NDP based on the sounding Trigger frame.

27. The integrated circuit of claim 26, wherein the first sensing responder receives the sounding trigger frame from the sensing initiator.

28. An integrated circuit for a sensing initiator; comprising

at least one input, which, in operation, inputs an electronic signal; and

control circuitry coupled to the at least one input, which, in operation, controls:

generating a sounding Trigger frame which triggers a transmission of a Null Data Packet (NDP) from a first sensing responder to a second sensing responder; and

transmitting the sounding Trigger frame to the first sensing responder and the second sensing responder.