

**CLAIMS**

1. A communication apparatus comprising:  
circuitry, which, in operation, generates a physical layer protocol data unit  
5 (PPDU) comprising a signal field that indicates resource unit (RU) assignment  
information for a plurality of other communication apparatuses; and  
a transmitter, which, in operation, transmits the PPDU to the plurality of other  
communication apparatuses in two or more 80 MHz frequency segments;  
wherein when one of the plurality of other communication apparatuses parks in  
10 one of the two or more 80 MHz frequency segments, RU assignment information  
corresponding to the one of the plurality of other communication apparatuses is  
indicated in the signal field transmitted in the one of the two or more 80 MHz frequency  
segments.
- 15 2. The communication apparatus of claim 1, the RU assignment information for  
the one of the plurality of other communication apparatuses is located outside the one  
of the two or more 80 MHz frequency segments.
- 20 3. The communication apparatus of claim 1, wherein only two or more of the  
plurality of other communication apparatuses parking in a same 80 MHz frequency  
segment of the two or more 80 MHz frequency segments are allowed to be multiplexed  
in a multi-user multiple input and multiple output (MU-MIMO) transmission.
- 25 4. The communication apparatus of claim 1, wherein two or more of the plurality  
of other communication apparatuses parking in different 80 MHz frequency segments  
of the two or more 80 MHz frequency segments are allowed to be multiplexed in a MU-  
MIMO transmission if the two or more of the plurality of other communication  
apparatuses are capable of receiving the MU-MIMO transmission.
- 30 5. The communication apparatus of claim 4, wherein when at least one of the two  
or more of the plurality of other communication apparatuses parks in one 80 MHz  
frequency segment of the two or more 80 MHz frequency segments, the signal field  
transmitted in the one 80 MHz frequency segment comprises user fields corresponding  
to the two or more of the plurality of other communication apparatuses.

6. The communication apparatus of claim 5, wherein each of the user fields, which are not corresponding to the at least one of the two or more of the plurality of other communication apparatuses, is a dummy user field.

5 7. The communication apparatus of claim 4, wherein at least one of the two or more of the plurality of other communications apparatus parks in one 80 MHz frequency segment of the two or more 80 MHz frequency segments, the signal field transmitted in the one 80 MHz frequency segment comprising one or more user field corresponding to the at least one of the two or more of the plurality of other  
10 communications apparatus.

8. The communication apparatus of claim 1, wherein the signal field comprises one or more user field and each of the one or more user field comprises a field to indicate whether the each of the one or more user field is for a MU-MIMO allocation or  
15 for a non-MU-MIMO allocation.

9. The communication apparatus of claim 1, wherein the signal field comprises a common field indicating whether a large-size RU or RU combination assignment for a single user is a MU-MIMO allocation or a non-MU-MMO allocation.  
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10. A communication apparatus comprising:  
a receiver, which, in operation, receives a physical layer protocol data unit (PPDU) comprising a signal field that indicates resource unit (RU) assignment information for the communication apparatus transmitted in two or more 80 MHz  
25 frequency segments; and  
circuitry, which, in operation, processes the PPDU,  
wherein when the communication apparatus parks in one of the two or more 80 MHz frequency segments, RU assignment information corresponding to the communication apparatuses is indicated in the signal field transmitted in the one of the  
30 two or more 80 MHz frequency segments.

11. The communication apparatus of claim 10, the RU assignment information for the communication apparatus is located outside the one of the two or more 80 MHz frequency segments.  
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12. The communication apparatus of claim 10, wherein only the communication apparatus and one or more peer communication apparatus parking in a same 80 MHz

frequency segment of the two or more 80 MHz frequency segments are allowed to be multiplexed in a multi-user multiple input and multiple output (MU-MIMO) transmission.

13. The communication apparatus of claim 10, wherein the communication  
5 apparatus and one or more peer communication apparatus parking in different 80 MHz frequency segments of the two or more 80 MHz frequency segments are allowed to be multiplexed in a MU-MIMO transmission if the communication apparatus and the one or more peer communication apparatuses are capable of receiving the MU-MIMO transmission.

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14. The communication apparatus of claim 13, wherein when at least one communication apparatus of the communication apparatus and the one or more peer communication apparatus parks in one 80 MHz frequency segment of the two or more 80 MHz frequency segments, the signal field transmitted in the one 80 MHz frequency  
15 segment comprises user fields corresponding to the communication apparatus and the one or more peer communication apparatus.

15. A communication method comprising:  
20 generating a physical layer protocol data unit (PPDU) comprising a signal field that indicates resource unit (RU) assignment information for a plurality of other communication apparatuses; and  
transmitting the PPDU to the plurality of other communication apparatuses in two or more 80 MHz frequency segments;  
25 wherein when one of the plurality of other communication apparatuses parks in one of the two or more 80 MHz frequency segments, RU assignment information corresponding to the one of the plurality of other communication apparatuses is indicated in the signal field transmitted in the one of the two or more 80 MHz frequency segments.