~~WHAT IS CLAIMED IS:~~

CLAIMS

1.~~-~~ A method of wireless communication, comprising:

receiving, by a base station, a symbol in an uplink communication, wherein the uplink communication uses a two-tone modulation scheme and is ~~associated~~in accordance with a resource allocation at sub physical resource block granularity~~;~~,

wherein the resource allocation includes resource allocations of three adjacent subcarriers where only two subcarriers of the three adjacent subcarriers are used for transmitting the uplink communication;

determining, by the base station, a phase rotation for the symbol ~~associated with~~in the uplink communication, wherein the phase rotation is determined based at least in part on a reference tone index associated with the resource allocation,

wherein the reference tone index is the same for each symbol of the uplink communication; and

applying, by the base station, the phase rotation to the symbol.

2.~~-~~ The method of claim 1, wherein the two-tone modulation scheme uses π/2 binary phase shift keying (BPSK) modulation.

3.~~-~~ The method of claim 1, wherein the ~~tone index is a reference tone index, associated with the resource allocation, and wherein the reference tone index is the same for multiple symbols.~~

~~4. The method of claim 3, wherein the~~ reference tone index matches a tone index of one of three tones associated with the resource allocation.

~~5.~~ 4. The method of claim ~~3~~1, wherein the reference tone index is based at least in part on two tones associated with the resource allocation.

~~6.~~ 5. The method of claim ~~5~~4, wherein the reference tone index is based at least in part

on a midpoint between the two tones associated with the resource allocation.

~~7.~~ 6. The method of claim 1, wherein the ~~tone index is~~phase rotation is further determined based on a tone index of a tone in which the symbol is received.

~~8.~~ 7. The method of claim ~~7~~6, wherein the phase rotation is reset at a start of a subframe or a start of a slot.

8. The method of claim 1, wherein the reference tone index is based at least in part on a midpoint between two adjacent tone indexes associated with the resource allocation.

9.~~-~~ A method of wireless communication, comprising:

determining, by a user equipment, a phase rotation for a symbol associated with an uplink communication,

wherein the uplink communication is to use a two-tone modulation scheme and is ~~associated~~in accordance with a resource allocation at sub physical resource block granularity, ~~and~~

wherein the resource allocation includes resource allocations of three adjacent subcarriers where only two subcarriers of the three adjacent subcarriers are used for transmitting the uplink communication,

wherein the phase rotation is determined based at least in part on a reference tone index associated with the resource allocation, and

wherein the reference tone index is the same for each symbol of the uplink communication;

applying, by the user equipment, the phase rotation to the symbol associated with the uplink communication; and

transmitting, by the user equipment, the symbol associated with the uplink communication.

10.~~-~~ The method of claim 9, wherein the two-tone modulation scheme uses π/2 binary

phase shift keying (BPSK) modulation.

~~11. The method of claim 9, wherein the tone index is a reference tone index, associated with the resource allocation, wherein the reference tone index is the same for multiple symbols.~~

~~12. The method of claim 11~~11. The method of claim 10, wherein the reference tone index matches a tone index of one of three tones associated with the resource allocation.

~~13.~~12. The method of claim ~~11~~10, wherein the reference tone index is based at least in part on two tones associated with the resource allocation.

~~14.~~13. The method of claim ~~13~~12, wherein the reference tone index is based at least in part on a midpoint between the two tones associated with the resource allocation.

~~15.~~14. The method of claim 9, wherein the ~~tone index is~~phase rotation is further determined based on a tone index of ~~the~~a tone in which the symbol is to be transmitted.

~~16.~~15. The method of claim ~~15~~14, wherein the phase rotation is reset at a start of a subframe or a start of a slot.

16. The method of claim 9, wherein the reference tone index is based at least in part on a midpoint between two adjacent tone indexes associated with the resource allocation.

17. A wireless communication device for wireless communication, comprising:

memory; and

one or more processors coupled to the memory, the memory and the one or more processors configured to:

determine a phase rotation for a symbol associated with an uplink communication, wherein the uplink communication uses a two-tone modulation scheme and is ~~associated~~in accordance with a resource allocation at sub physical resource block granularity, ~~and~~

wherein the resource allocation includes resource allocations of three adjacent subcarriers where only two subcarriers of the three adjacent subcarriers are used for transmitting the uplink communication,

wherein the phase rotation is determined based at least in part on a reference tone index associated with the resource allocation, and

wherein the reference tone index is the same for each symbol of the uplink communication;

apply the phase rotation to the symbol associated with the uplink communication; and

transmit the symbol associated with the uplink communication.

18.- The wireless communication device of claim 17, wherein the two-tone modulation scheme uses π/2 binary phase shift keying (BPSK) modulation.

19.- The wireless communication device of claim 17, wherein the ~~tone index is a reference tone index, associated with the resource allocation, wherein the reference tone index is the same for multiple symbols.~~

~~20. The wireless communication device of claim 19, wherein the~~ reference tone index matches a tone index of one of three tones associated with the resource allocation.

~~21.~~ 20. The wireless communication device of claim ~~19~~17, wherein the reference tone index is based at least in part on two tones associated with the resource allocation.

~~22.~~ 21. The wireless communication device of claim ~~21~~20, wherein the reference tone index is based at least in part on a midpoint between the two tones associated with the resource allocation.

~~23.~~ 22. The wireless communication device of claim 17, wherein the ~~tone index is~~ phase rotation is further determined based on a tone index of ~~the~~a tone in which the symbol is communicated.

~~24.~~ 23. The wireless communication device of claim ~~23~~22, wherein the phase rotation is reset at a start of a subframe or a start of a slot.

~~25. A method of~~24. A wireless communication device for wireless communication, comprising:

~~generating, by a user equipment (UE), a one-tone demodulation reference signal based at least in part on~~ memory; and

one or more ~~sequences, wherein the UE is~~ processors coupled to ~~transmit~~the memory, the memory and the one or more processors configured to:

receive a symbol in an uplink communication, wherein the uplink communication uses a two-tone ~~demodulation reference signal based at least in part on~~modulation scheme and is in accordance with a resource allocation at sub physical resource block granularity ~~and a two-tone modulation scheme; and~~,

wherein the resource allocation includes resource allocations of three adjacent subcarriers where only two subcarriers of the three adjacent subcarriers are used for transmitting~~, by the UE, the one-tone demodulation reference signal using~~ the uplink communication;

determine a ~~single tone~~ phase rotation for the symbol in the uplink communication, wherein the phase rotation is determined based at least in part on a reference tone index associated with the resource allocation~~.~~,

wherein the reference tone index is the same for each symbol of the uplink communication; and

apply the phase rotation to the symbol.

~~26.~~ 25. The ~~method~~wireless communication device of claim ~~25~~24, wherein the two-tone modulation scheme uses π/2 binary phase shift keying (BPSK) modulation.

~~27.~~ 26. The ~~method~~wireless communication device of claim ~~25~~24, wherein the ~~single~~reference tone ~~is~~index matches a tone index of one of three tones associated with the resource allocation.

28. 27. The methodwireless communication device of claim 2524, wherein the one or more sequences include a first sequence and a second sequence.

29. The method of claim 28, wherein the one-tone demodulation reference signal is generated tone index is based at least in part on two tones associated with the resource allocation.

28. The wireless communication device of claim 27, wherein the reference tone index is based at least in part on a composite ofmidpoint between the first sequence andtwo tones associated with the second sequence. resource allocation.

30. 29. The methodwireless communication device of claim 2824, wherein the first sequencephase rotation is further determined based on a Hadamard code andtone index of a tone in which the second sequencesymbol is a binary sequence. received.

30. The wireless communication device of claim 29, wherein the phase rotation is reset at a start of a subframe or a start of a slot.