Exhibit A

Docket No.: 061240-8006.US05
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Li et al.

Application No.: 14/321,615

Confirmation No.: 1231

Filed: July 1, 2014

Art Unit: 2461

For: METHODS AND APPARATUS FOR SIGNAL TRANSMISSION AND RECEPTION IN A BROADBAND COMMUNICATION SYSTEM

Examiner: Dmitry Levitan

AMENDMENT AND RESPONSE TO NON-FINAL OFFICE ACTION UNDER 37 CFR 1.111

MS Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In response to the Non-Final Office Action mailed on April 21, 2016, please amend the above-identified U.S. patent application as follows:

INTRODUCTORY COMMENTS

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 8 of this paper.

AMENDMENTS TO THE CLAIMS

Please amend the claims as follows:

1-20. (Canceled)

21. (Currently Amended) A communication method for a mobile device served by a base station in a communication system employing Orthogonal Frequency Division Multiplexing (OFDM), the mobile device ~~using~~ transmitting data information on data subcarriers and control information on control subcarriers in an uplink frequency band ~~to transmit~~ to the base station, the method comprising:

receiving, at the mobile device, an instruction from the serving base station to transmit a probing signal;

forming, in response to the received instruction, the probing signal with a code sequence modulated in the frequency domain, wherein:

the probing signal ~~occupies a bandwidth that is narrower than a bandwidth of~~ is configured to overlap, in the time domain, with uplink signals transmitted over the uplink frequency band of the communication system; and

the probing signal is configured to ~~avoid subcarriers~~ overlap, in the frequency domain, ~~that are assigned for use by an uplink control channel in~~ with the data subcarriers but to avoid the control subcarriers in the uplink frequency band of the communication system; and

transmitting the probing signal to the serving base station.

22. (Previously Presented) The method of claim 21, wherein transmission power of the probing signal is under power control.

23. (Previously Presented) The method of claim 22, wherein an initial transmission power at the mobile device is set at least based on a path loss between the serving base station and the mobile device.

24. (Previously Presented) The method of claim 21, wherein the probing signal enables the serving base station to estimate a channel profile in the frequency domain.

25. (Previously Presented) The method of claim 24, wherein the channel profile is used by the serving base station to determine a transmission format for a subsequent transmission over the channel.

26. (Previously Presented) The method of claim 25, wherein the transmission format comprises a modulation/coding and pilot pattern.

27. (Previously Presented) The method of claim 24, wherein the channel profile is used for beamforming in a subsequent transmission by the serving base station.

28. (Currently Amended) A communication method for a base station serving a plurality of mobile devices in a communication system employing Orthogonal Frequency Division Multiplexing (OFDM), ~~the mobile device using~~ the base station receiving data information on data subcarriers and control information on control subcarriers in an uplink frequency band ~~to transmit to the base station~~from the plurality of mobile devices, the method comprising:

transmitting an instruction to one of the plurality of mobile devices to transmit a probing signal, wherein:

the probing signal is formed with a code sequence modulated in the frequency domain;

the probing signal ~~occupies a bandwidth that is narrower than a bandwidth of~~ is configured to overlap, in the time domain, with uplink signals transmitted over the uplink frequency band of the communication system; and

the probing signal is configured to ~~avoid subcarriers~~overlap, in the frequency domain, ~~that are assigned for use by an uplink control channel in~~ with the data subcarriers but to avoid the control subcarriers in the uplink frequency band of the communication system; and

receiving the probing signal from the one of the plurality of the mobile device~~s~~.

29. (Previously Presented) The method of claim 28, wherein the base station utilizes the received probing signal to estimate a channel profile in the frequency domain.

30. (Previously Presented) The method of claim 29, wherein the base station utilizes the estimated channel profile to determine a transmission format for a subsequent transmission over the channel.

31. (Previously Presented) The method of claim 30, wherein the transmission format comprises a modulation/coding and pilot pattern.

32. (Previously Presented) The method of claim 29, wherein the base station utilizes the estimated channel profile for beamforming in a subsequent transmission.

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