

IN THE CLAIMS

What is claimed is:

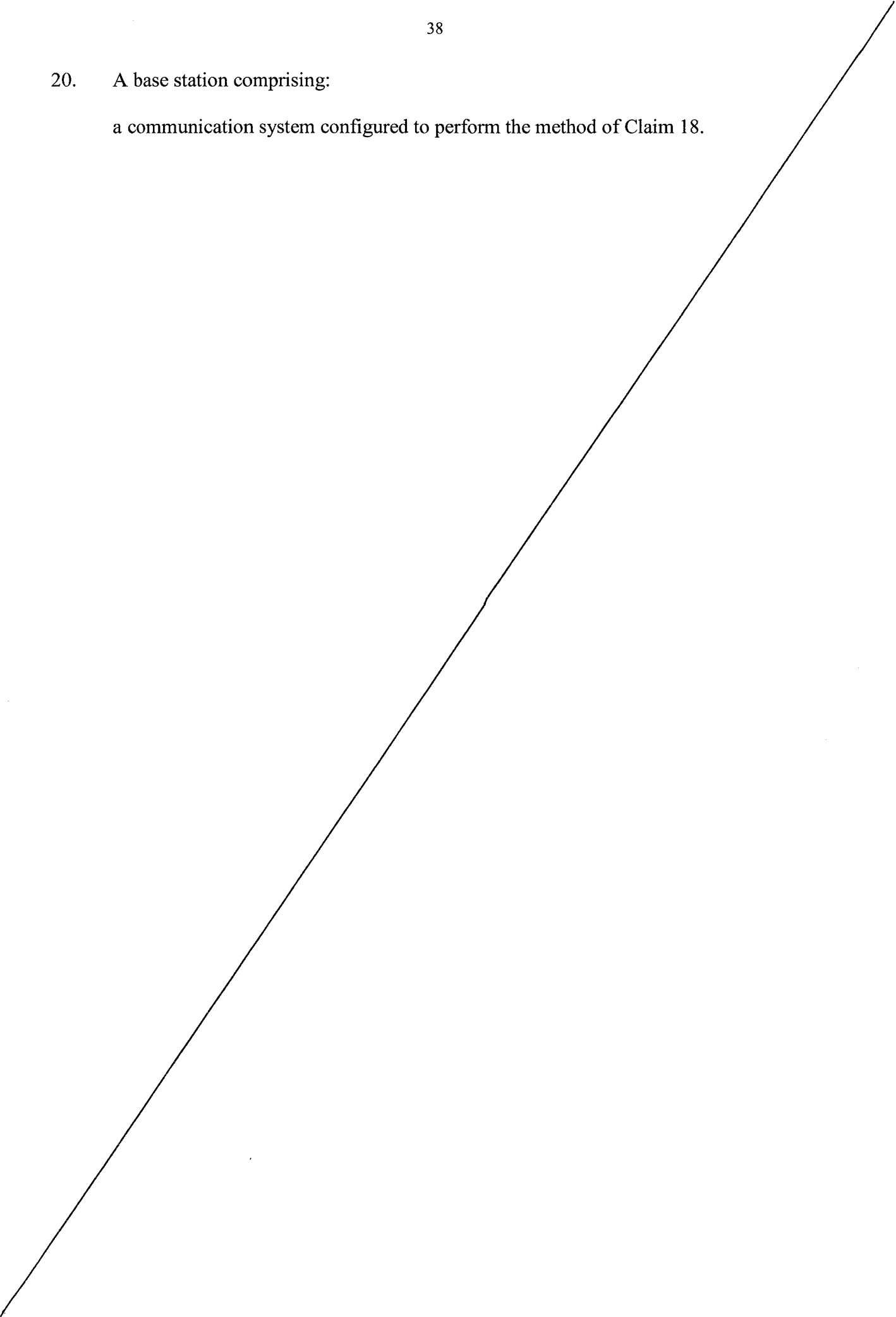
1. A method for the transmission of information in a wireless communication system, comprising:
determining by a wireless device a configuration of a plurality of power amplifiers to achieve a single antenna transmission mode;
amplifying a signal by said wireless device using said configuration of said plurality of power amplifiers to form a plurality of amplified signals;
simultaneously transmitting at or about the same time by said wireless device to a base station said plurality of amplified signals from a plurality of physical antennas, wherein said plurality of physical antennas are coupled to said configuration of said plurality of power amplifiers; and
wherein the measured transmit power from the totality of said plurality of physical antennas is about the same as the required transmit power using said single antenna transmission mode.
2. The method of claim 1, further comprising:
sending from said wireless device to said base station said configuration of said power amplifiers of said wireless device.
3. The method of claim 1, further comprising:
receiving by said wireless device from said base station said single antenna transmission mode.
4. The method of claim 1, wherein said determining by said wireless device a configuration of a plurality of power amplifiers to achieve a single antenna transmission mode further comprising:
enabling, disabling, or both a portion of said plurality of power amplifiers to achieve about the same transmit power as said single antenna transmission mode.

5. The method of claim 1, further comprising:
determining by said wireless device a power headroom offset of said configuration of said plurality of power amplifiers by combining the power headroom from each power amplifier of said configuration of power amplifiers; and
sending by said wireless device to said base station said power headroom offset.
6. The method of claim 1, wherein said determining by said wireless device a configuration of a plurality of power amplifiers to achieve a single antenna transmission mode further comprising:
enabling, disabling, or both a portion of said plurality of power amplifiers using the channel conditions received at said plurality of physical antennas.
7. The method of claim 1, further comprising:
determining by said wireless device a power headroom offset as the difference between the power headroom of said configuration of said plurality of power amplifiers used to achieve said single antenna transmission mode and the power headroom of a single power amplifier used to perform said single antenna transmission mode; and
sending by said wireless device to said base station said power headroom offset.
8. A method for operating a wireless communication system, the method comprising:
receiving, by a wireless device in the system, information on a sounding reference signal port to support the transmission of a sounding reference signal using a single antenna port mode;
receiving, by the wireless device, information on a set of sounding reference signal ports to support the transmission of said sounding reference signal using one or more of a plurality of physical antennas;

selecting, by the wireless device, one or more of said sounding reference signal ports;
and
transmitting by the wireless device to a base station in the system, said sounding reference signal using said selected one or more of said sounding reference signal ports.

9. The method of claim 8, further comprising:
defining by said wireless device another set of sounding reference signal ports to support the transmission of said sounding reference signal using a portion of said plurality of physical antennas.
10. The method of claim 8, wherein said sounding reference signal can be aperiodic or periodic.
11. The method of claim 8, wherein said sounding reference signal ports are defined separately for an aperiodic sounding reference signal, a periodic sounding reference signal, or both.
12. The method of claim 8, wherein a periodic sounding reference signal port, an aperiodic sounding reference signal port, or both is specified to transmit said sounding reference signal using said single antenna port mode; and
a plurality of aperiodic sounding reference signal ports, a plurality of periodic sounding reference signal ports, or both are specified to transmit said sounding reference signals for said plurality of physical antennas.
13. The method of claim 8, wherein one or more of said sounding reference signal ports can be re-used for other physical antenna configurations.
14. The method of claim 8, wherein said selecting one or more of said sounding reference signal ports further comprising:
selecting by said wireless device one or more of said sounding reference signal ports.

15. The method of claim 8, wherein said selecting one or more of said sounding reference signal ports further comprising:
selecting by said wireless device one or more of said sounding reference signal ports;
and
sending from said wireless device to said base station said selection of one or more of said sounding reference signal ports.
16. The method of claim 8, wherein said selecting one or more of said sounding reference signal ports further comprising:
receiving by said wireless device from said base station said selection of one or more of said sounding reference signal ports.
17. The method of claim 8, wherein said single antenna port mode includes the ability to simultaneously transmit at or about the same time said sounding reference signal from a plurality of physical antennas.
18. A method for operating a base station in a wireless communication system, the method comprising:
transmitting, by the base station, information on a sounding reference signal port to support the transmission of a sounding reference signal using a single antenna port mode;
transmitting, by the base station, information on a set of sounding reference signal ports to support the transmission of said sounding reference signal using one or more of a plurality of physical antennas; and
receiving by the base station, a sounding reference signal, using selected one or more of said sounding reference signal ports.
19. A wireless device comprising:
a communication system configured to perform the method of Claim 8.

20. A base station comprising:
a communication system configured to perform the method of Claim 18.
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CLAIMS:

1. A method for the transmission of information in a wireless communication system, comprising:

determining by a wireless device a configuration of a plurality of power amplifiers to achieve a single antenna transmission mode;

amplifying a signal by said wireless device using said configuration of said plurality of power amplifiers to form a plurality of amplified signals;

simultaneously transmitting at or about the same time by said wireless device to a base station said plurality of amplified signals from a plurality of physical antennas, wherein said plurality of physical antennas are coupled to said configuration of said plurality of power amplifiers; and

wherein the measured transmit power from the totality of said plurality of physical antennas is about the same as a required transmit power using said single antenna transmission mode.
2. The method of claim 1, further comprising:

sending from said wireless device to said base station said configuration of said power amplifiers of said wireless device.
3. The method of claim 1, further comprising:

receiving by said wireless device from said base station said single antenna transmission mode.

4. The method of claim 1, wherein said determining by said wireless device a configuration of a plurality of power amplifiers to achieve a single antenna transmission mode further comprising:

enabling, disabling, or both a portion of said plurality of power amplifiers to achieve about the same transmit power as said single antenna transmission mode.
5. The method of claim 1, further comprising:

determining by said wireless device a power headroom offset of said configuration of said plurality of power amplifiers by combining the power headroom from each power amplifier of said configuration of power amplifiers; and

sending by said wireless device to said base station said power headroom offset.
6. The method of claim 1, wherein said determining by said wireless device a configuration of a plurality of power amplifiers to achieve a single antenna transmission mode further comprising:

enabling, disabling, or both a portion of said plurality of power amplifiers using channel conditions received at said plurality of physical antennas.
7. The method of claim 1, further comprising:

determining by said wireless device a power headroom offset as the difference between the power headroom of said configuration of said plurality of power amplifiers used to achieve said single antenna transmission mode and the power headroom of a single power amplifier used to perform said single antenna transmission mode; and

sending by said wireless device to said base station said power headroom offset.