

REPRESENTATIVE CLAIMS

1. A method for improving wireless service within a region separated from a wireless transmission point by a barrier that obstructs or degrades a wireless signal,
5 comprising:
 receiving, at a first receiver, a millimeter wave signal, wherein:
 the millimeter wave signal is a first signal;
 the first signal comprises a wireless transmission protocol having a
stack layer;
10 the first receiver is disposed in a first region; and
 the first region is disposed on a first side of a barrier;
 converting the millimeter wave signal to at least one of an optical signal or an
electrical signal, wherein:
 the first signal is converted from the wireless transmission protocol to
15 a conversion protocol; and
 the conversion protocol preserves the first signal's stack layer;
 transmitting the optical signal or the electrical signal on a conduit to a second
receiver, wherein:
 the second receiver is disposed in a second region; and
20 the second region is disposed on a second side of the barrier;
 converting the optical or electrical signal from the conversion protocol back to
the wireless transmission protocol; and
 transmitting the second converted signal to a wireless device, wherein the
wireless device is disposed in a third region on the second side of the barrier.
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2. The method of claim 1, wherein the barrier comprises an energy absorbing material.
3. The method of claim 1, wherein the barrier comprises an obstacle occluding
30 line-of-sight between the wireless device and a transmitter broadcasting the millimeter
wave signal to the first receiver.

4. The method of claim 1, wherein a distance between the wireless device and the second side of the barrier is less than a distance between the wireless device and the first side of the barrier.
5. The method of claim 1, wherein:
the first receiver is a first transceiver; and
the second receiver is a second transceiver.
6. The method of claim 1, wherein the wireless transmission protocol comprises
a 3GPP protocol stack.
7. The method of claim 1, wherein the conversion protocol comprises a CPRI protocol stack.
8. A computer program product for improving wireless service within a region separated from a wireless transmission point by a barrier that obstructs or degrades a wireless signal, the computer program product comprising:
a non-transitory computer-readable storage medium, storing program codes executed by a processor, to perform:
receiving, at a first receiver, a millimeter wave signal, wherein:
the millimeter wave signal is a first signal;
the first signal comprises a wireless transmission protocol having a stack layer;
the first receiver is disposed in a first region; and
the first region is disposed on a first side of a barrier;
converting the millimeter wave signal to at least one of an optical signal or an electrical signal, wherein:
the first signal is converted from the wireless transmission protocol to a conversion protocol; and
the conversion protocol preserves the first signal's stack layer;
transmitting the optical signal or the electrical signal on a conduit to a second receiver, wherein:
the second receiver is disposed in a second region; and

the second region is disposed on a second side of the barrier;
converting the optical or electrical signal from the conversion protocol back to
the wireless transmission protocol; and
transmitting the second converted signal to a wireless device, wherein the
5 wireless device is disposed in a third region on the second side of the barrier.

9. The computer program product of claim 8, wherein the barrier comprises an
energy absorbing material.

10 10. The computer program product of claim 8, wherein the barrier comprises an
obstacle occluding line-of-sight between the wireless device and a transmitter
broadcasting the millimeter wave signal to the first receiver.

11 11. The computer program product of claim 8, wherein a distance between the
15 wireless device and the second side of the barrier is less than a distance between the
wireless device and the first side of the barrier.

12 12. The computer program product of claim 8, wherein:
the first receiver is a first transceiver; and
20 the second receiver is a second transceiver.

13 13. The computer program product of claim 8, wherein the wireless transmission
protocol comprises a 3GPP protocol stack.

25 14. The computer program product of claim 8, wherein the conversion protocol
comprises a CPRI protocol stack.

15 15. A system for improving wireless service within a region separated from a
wireless transmission point by a barrier that obstructs or degrades a wireless signal,
30 comprising:

a first receiver configured to receive a millimeter wave signal, wherein:
the millimeter wave signal is a first signal;

the first signal comprises a wireless transmission protocol having a stack layer;

the first receiver is disposed in a first region; and

the first region is disposed on a first side of a barrier;

5 a first converter communicably coupled to the first receiver, the converter configured to convert the millimeter wave signal to at least one of an optical signal or an electrical signal, wherein:

the first signal is converted from the wireless transmission protocol to a conversion protocol; and

10 the conversion protocol preserves the first signal's stack layer;

a first transmitter coupled to the converter;

a conduit communicably coupled to the first transmitter;

a second receiver communicably coupled to the conduit, wherein the conduit is configured to transmit the optical signal or the electrical signal to the second

15 receiver, wherein:

the second receiver is disposed in a second region; and

the second region is disposed on a second side of the barrier;

a second converter communicably coupled to the second receiver and configured to convert the optical or electrical signal from the conversion protocol

20 back to the wireless transmission protocol; and

a transmitter communicably coupled to the second converter and configured to transmit the second converted signal to a wireless device, wherein the wireless device is disposed in a third region on the second side of the barrier.

25 16. The computer program product of claim 15, wherein the barrier comprises an energy absorbing material.

17. The computer program product of claim 15, wherein the barrier comprises an obstacle occluding line-of-sight between the wireless device and a wireless service
30 provider transmitter broadcasting the millimeter wave signal to the first receiver.

18. The computer program product of claim 15, wherein a distance between the wireless device and the second side of the barrier is less than a distance between the wireless device and the first side of the barrier.

5 19. The computer program product of claim 15, wherein:
the first receiver is a first transceiver; and
the second receiver is a second transceiver.

20. The computer program product of claim 15, wherein the wireless transmission
10 protocol comprises a 3GPP protocol stack.

21. The computer program product of claim 15, wherein the conversion protocol
comprises a CPRI protocol stack.

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