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Khan

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(54) **MILLIMETER WAVE WIRELESS SYSTEM
USING LICENSED AND UNLICENSED
FREQUENCY SPRECTRUM**

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CPC **H04W 84/045** (2013.01); **H04B 7/02** (2013.01); **H04W 74/006** (2013.01); **H04W 80/02** (2013.01); **H04W 84/005** (2013.01); **H04W 84/04** (2013.01); **H04W 88/06** (2013.01); **H04W 92/20** (2013.01); **H04W 74/0816** (2013.01)

(58) **Field of Classification Search**

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See application file for complete search history.

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ABSTRACT

A method of wireless communication includes transmitting in a downlink direction on a licensed millimeter wave band, by a radio base station, a first millimeter wave band signal at high transmit equivalent isotropically radiated power (EIRP) using a multiple input multiple output transmit antenna array. The method includes receiving by a communications device the first millimeter wave band signal. The method includes transmitting in an uplink direction on an unlicensed millimeter wave band, by the communications device, a second millimeter wave band signal at low transmit equivalent isotropically radiated power (EIRP) using a multiple input multiple output transmit antenna array. The method includes receiving on the unlicensed millimeter wave band, by the radio base station, the second millimeter wave band signal at a high receive gain using a multiple input multiple output receive antenna array.

26 Claims, 11 Drawing Sheets

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