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(57) Abstract: A system and method for antenna optimization for wireless broadband communication is provided. Such an en-
hanced antenna array includes higher-gain antenna and lower-gain antenna. The beamforming antenna, both higher-gain and low-
er-gain, are designed to be able to transmit to and receive from another transceiver. The higher-gain antenna may be designed to
form a more directional beam substantially closer to the horizon; whereas the lower-gain antenna is capable of forming a less di-
rectional beam at a distance further from the horizon. In both cases, the antenna may form their respective beams anywhere in the
360 degrees horizontally around the antenna array. The higher-gain antenna may include a coverage area from the horizon to a
substantially acute angle from the horizon in the vertical direction. In contrast, the lower-gain antenna may have coverage from
the substantially acute angle from the horizon to substantially vertical. The substantially acute angle may be approximately 10 de-
grees in some cases. In some cases the lower-gain antenna may include four elements. Likewise, in some embodiments, the high-
er-gain antenna may include four elements as well.

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