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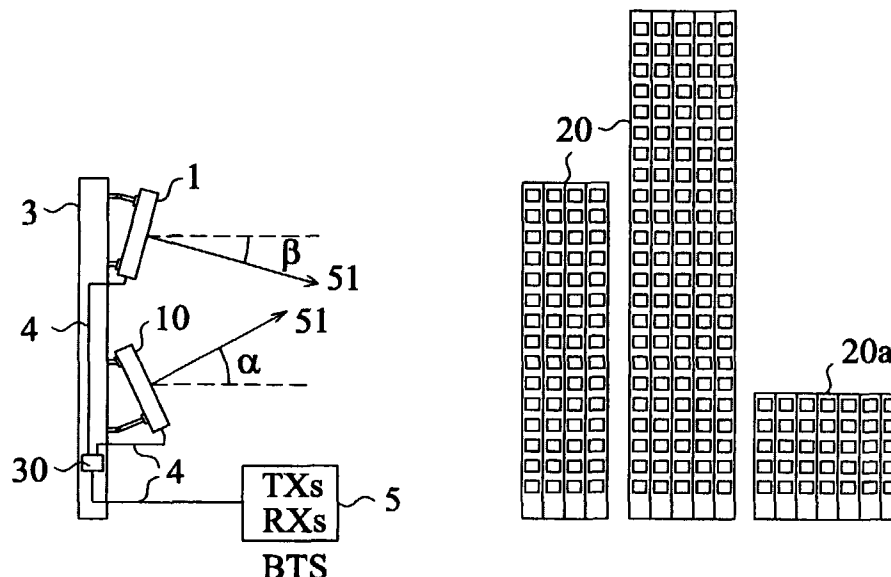
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(54) Title: A THREE-DIMENSION COVERAGE CELLULAR NETWORK



(57) Abstract: Network, method, base station and antenna are disclosed to establish three-dimension cellular signal coverage, especially coverage in upper floors of high-rise buildings in city, for a cellular telecommunication system. To expand base station coverage to space above ground, up-tilt antenna and down-tilt antenna are coupled together to share base station transceivers, so as to share cellular frequency spectrum, expand coverage and meanwhile avoid interferences. The down-tilt antenna covers ground; the up-tilt antenna covers space above ground, especially the upper floors of high-rise buildings in its cell. A multibeam multi-tilt base station antenna is invented to replace a down-tilt antenna and an up-tilt antenna to provide three-dimension coverage with single antenna. It has one beam pointing downward to cover ground and one beam pointing upward to cover space above ground in a base station.

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