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Hall et al.

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(54) **METHOD, APPARATUS, AND SYSTEM FOR PARALLEL PLATE MODE RADIAL PATTERN SIGNALING**

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See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

4,684,874	A *	8/1987	Swift et al.	333/125
4,700,145	A *	10/1987	Yelland et al.	330/286
4,933,651	A *	6/1990	Benahim et al.	333/125
5,982,256	A *	11/1999	Uchimura et al.	333/239
6,242,984	B1 *	6/2001	Stones et al.	330/295
6,882,239	B2 *	4/2005	Miller	333/24 R
6,960,970	B2 *	11/2005	Elco	333/239
7,088,199	B2 *	8/2006	Bartley et al.	333/24 R
2006/0284701	A1 *	12/2006	Wu et al.	333/125

* cited by examiner

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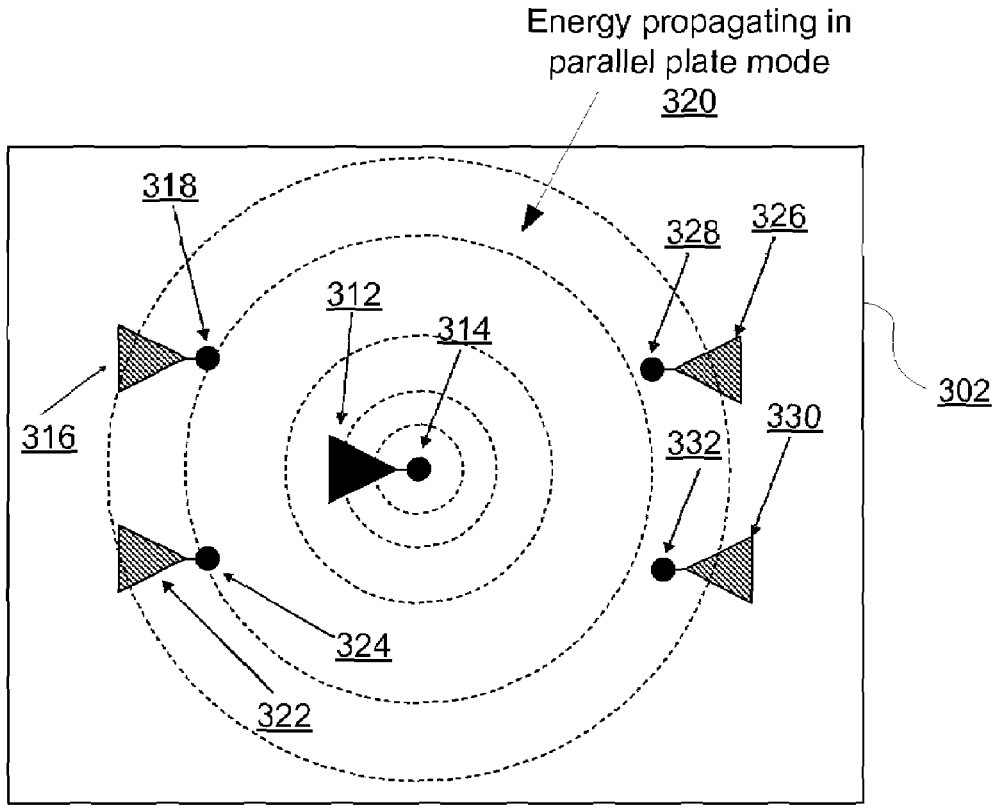
(57) **ABSTRACT**

A method, system, and apparatus for high data rate parallel plate mode signaling.

18 Claims, 4 Drawing Sheets