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Beckner et al.

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[54] RANGING BY SEQUENTIAL TONE TRANSMISSION

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[58] **Field of Search** 342/125, 50, 127

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[57] **ABSTRACT**

A range finding system uses non-simultaneous measurements between two communicating and cooperating instruments such that a single carrier frequency is used to exchange information between the instruments with non-simultaneous transmission using the same transmission channel. The range finding system may be considered to be an interrogator/transponder arrangement in which the results of a phase measurement against a local clock is made at one transponder station during one time interval, and then the transponder transmits both a tone derived from the transponder's local clock and the measurement results back to the interrogator station during a second time interval. The interrogator then has everything it needs to accurately compute the range while eliminating local delays in clock differences, while permitting the interrogator and the transponder to share a single frequency intermittently.

4 Claims, 3 Drawing Sheets