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Rabinowitz et al.

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(54) **POSITION LOCATION USING TERRESTRIAL DIGITAL VIDEO BROADCAST TELEVISION SIGNALS**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 1280 days.

This patent is subject to a terminal disclaimer.

(21) Appl. No.: **09/932,010**

(22) Filed: **Aug. 17, 2001**

(65) **Prior Publication Data**

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Related U.S. Application Data

(63) Continuation-in-part of application No. 09/887,158, filed on Jun. 21, 2001, now abandoned.

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(51) **Int. Cl.**
G01S 3/02 (2006.01)

(52) **U.S. Cl.** **342/464**

(58) **Field of Classification Search** 342/357.01, 342/357.06, 453, 463, 464
See application file for complete search history.

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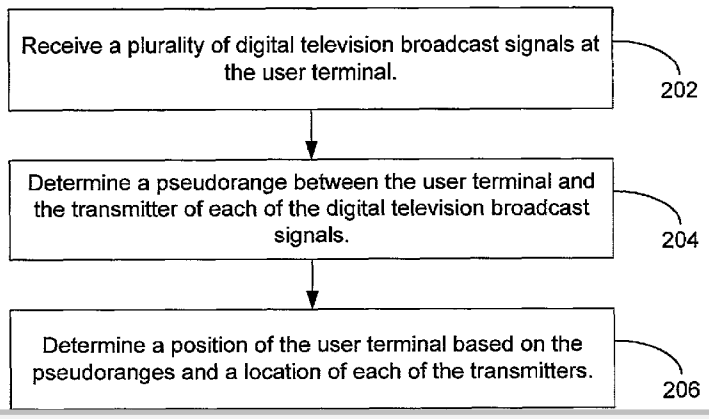
(57) **ABSTRACT**

A method and computer program product for determining the position of a user terminal includes receiving at the user terminal a plurality of digital television (DTV) broadcast signals from a plurality of DTV transmitters, wherein each of the DTV signals is a European Telecommunications Standards Institute (ETSI) Digital Video Broadcasting-Terrestrial (DVB-T) signal; determining a pseudo-range between the user terminal and each DTV transmitter based on the DTV broadcast signals based on a known component in the DTV signals; and determining a position of the user terminal based on the pseudo-ranges and a location of each of the DTV transmitters.

87 Claims, 17 Drawing Sheets



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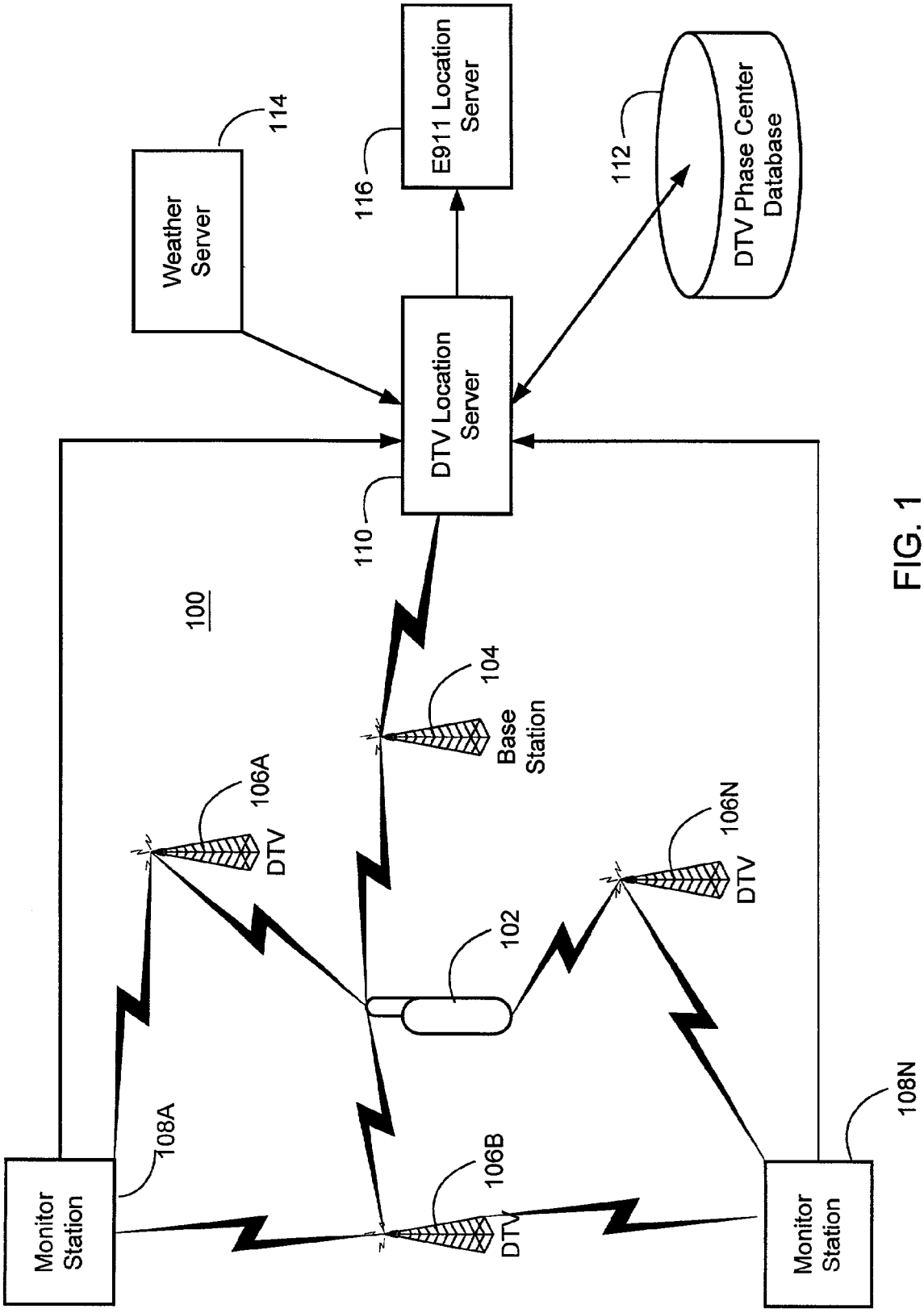

FIG. 1

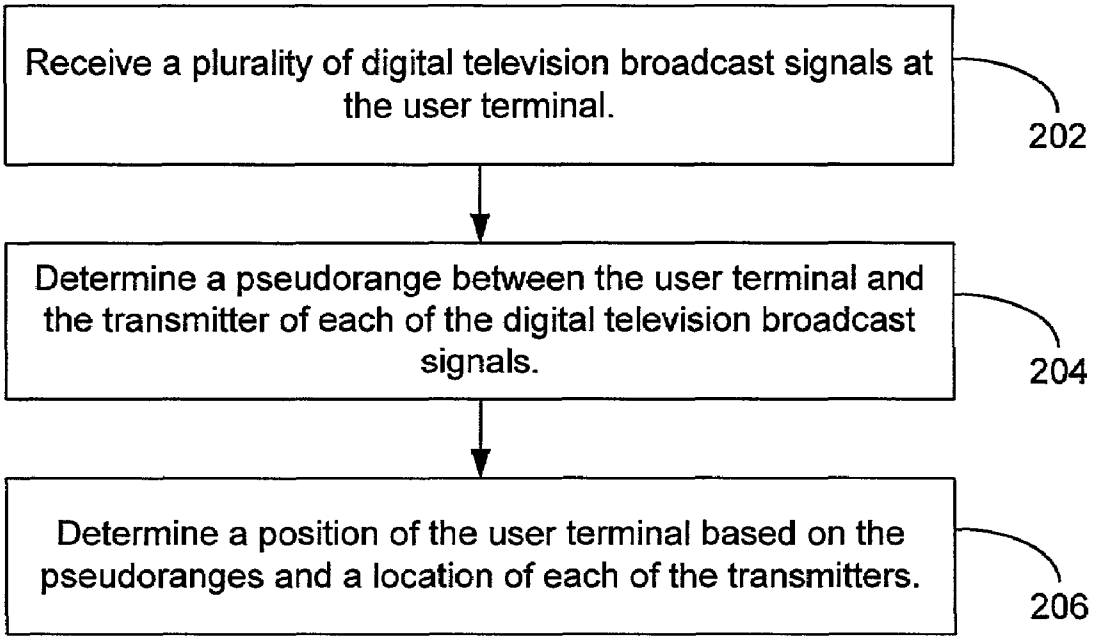

FIG. 2

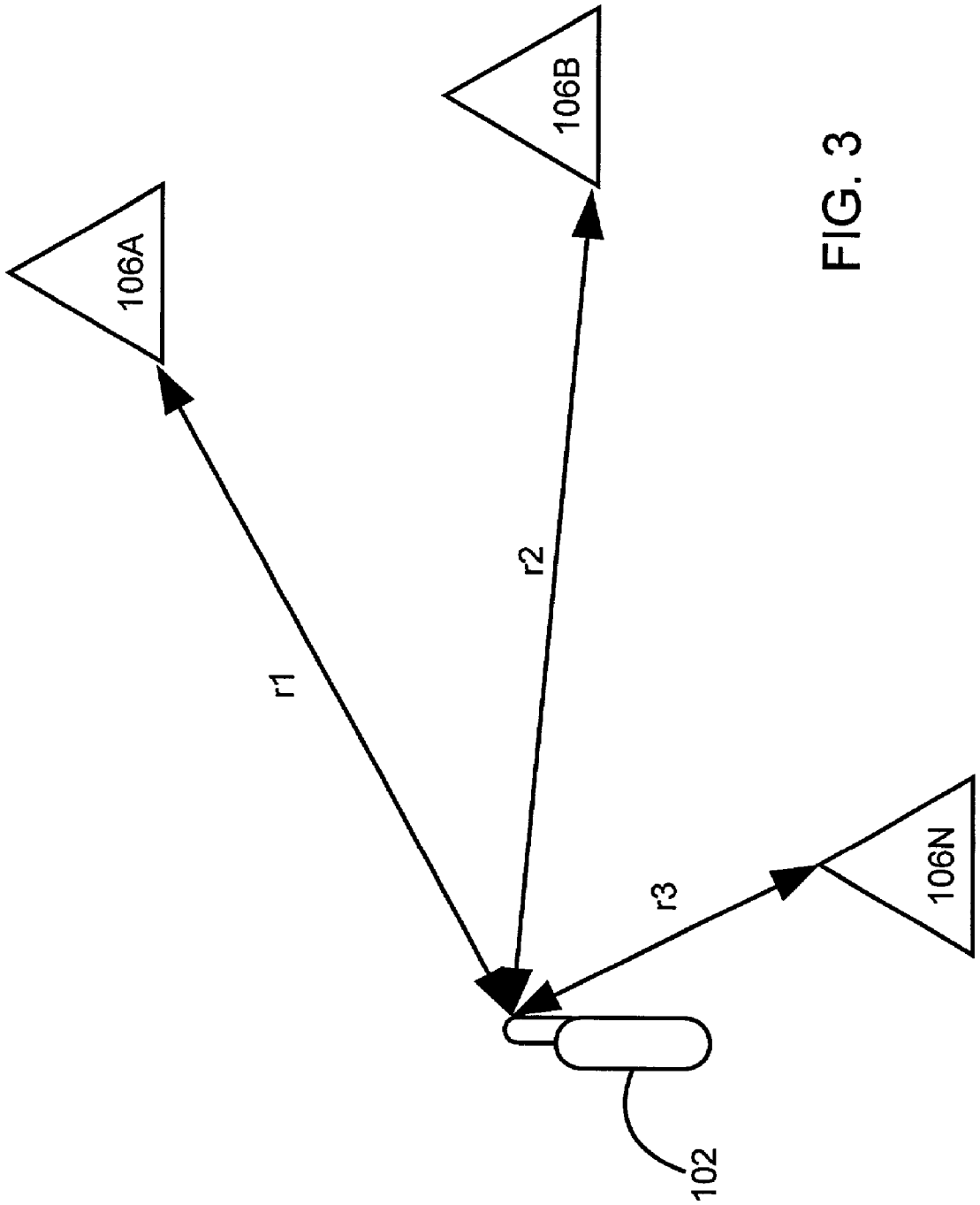

FIG. 3

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