United States Patent [19]

Cosentino

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[54] **AUTONOMOUS REGISTRATION OVERLOAD CONTROL FOR CELLULAR MOBILE RADIO SYSTEMS**

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[21] Appl. No.: **570,948**

[22] Filed: **Aug. 22, 1990**

[51] Int. Cl.^{5} **H04M 11/00**
[52] U.S. Cl. **379/59**; 379/63
[58] Field of Search 379/59, 60, 63; 455/33, 455/56

[56] **References Cited**

U.S. PATENT DOCUMENTS

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[57] **ABSTRACT**

Registration signal channel overloads occurring due to overly numerous autonomous registration messages initiated by the mobile radiotelephones are averted by monitoring the number of autonomous registrations occurring or requested in a particular local cellular system and responding in the event of an impending overload by sending messages to specified mobile radiotelephones instructing them not to register at this time. The roamer mobile radiotelephones requesting registration within an area covered by a cellular system facing an impending overload are instructed, via an overhead message, not to register. Allowance of registration is not permitted until the overload condition is terminated. Alternatively the period between autonomous registrations is increased until the overload is cleared.
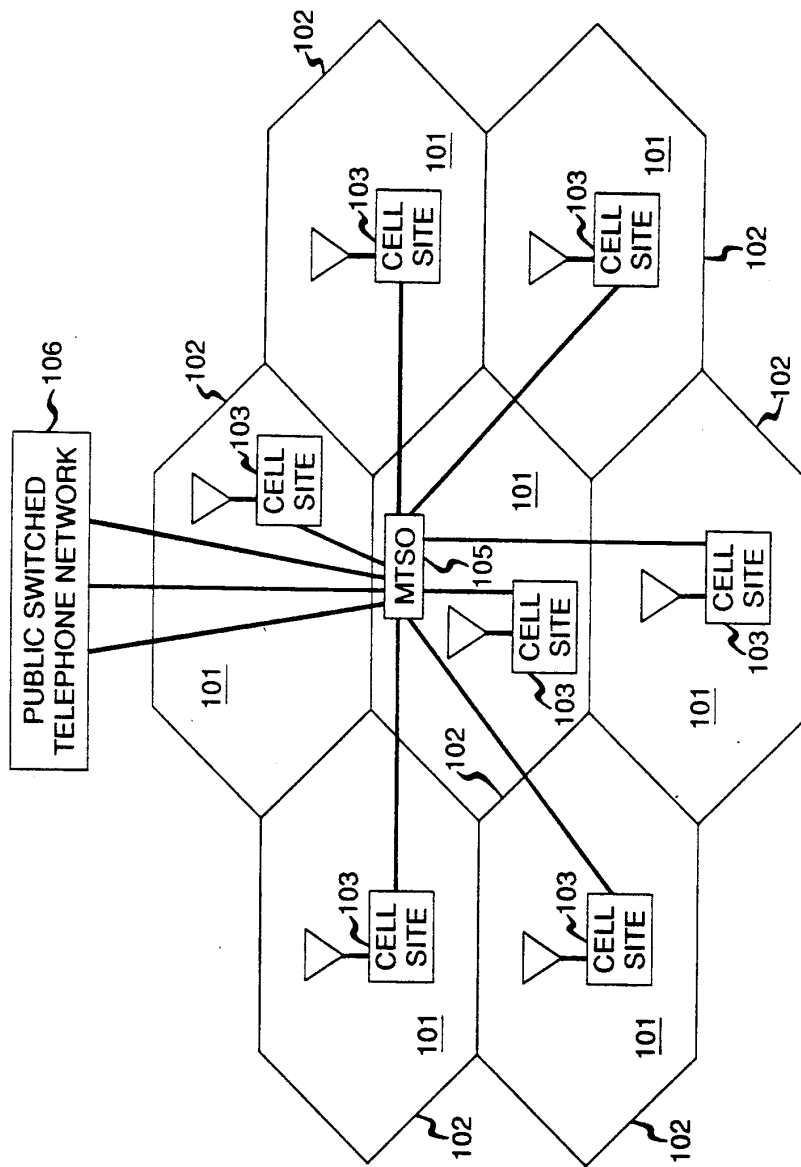
17 Claims, 9 Drawing Sheets

FIG. 1
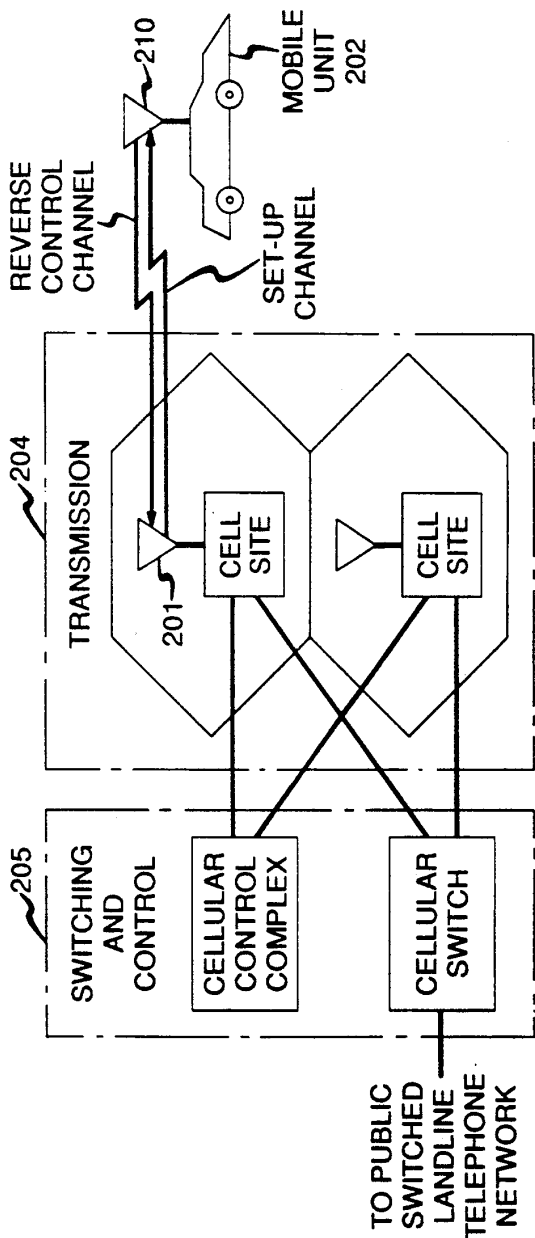(PRIOR ART)

CELLULAR RADIO TELEPHONE SYSTEM

FIG. 2

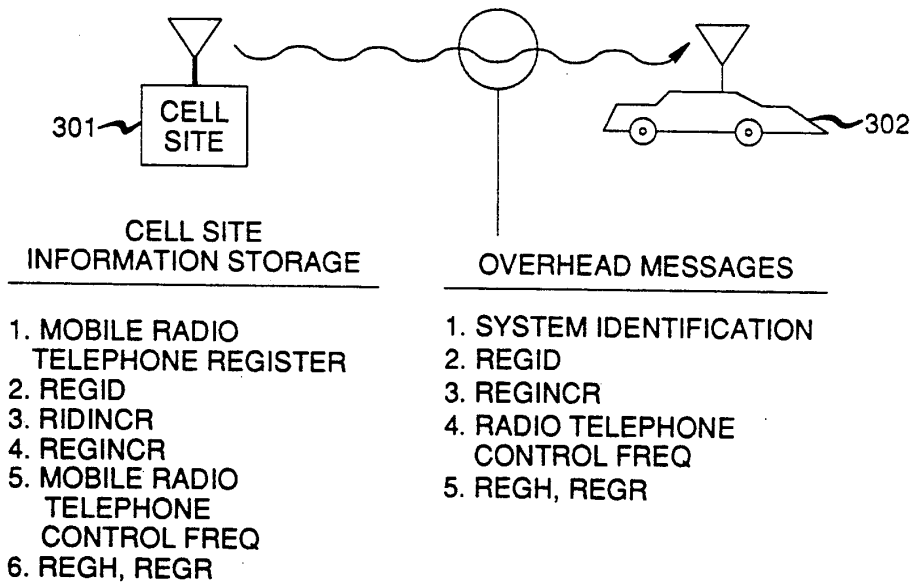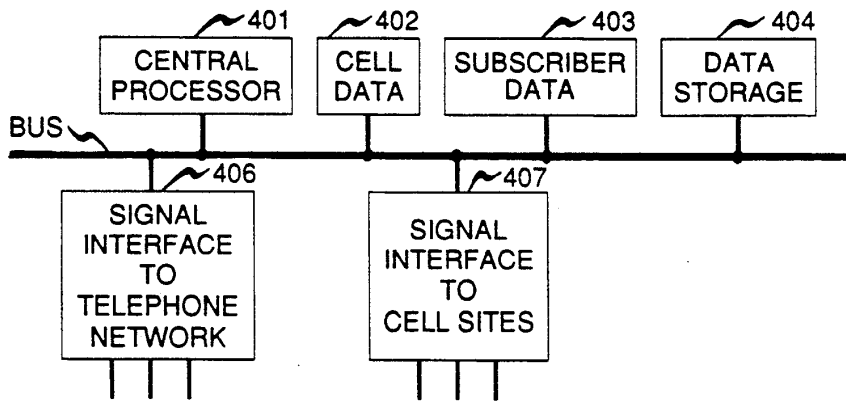REVERSE CONTROL CHANNEL

210

MOBILE UNIT 202

SET-UP CHANNEL

TRANSMISSION 204

201

CELL SITE

CELL SITE

SWITCHING AND CONTROL 205

CELLULAR CONTROL COMPLEX

CELLULAR SWITCH

TO PUBLIC SWITCHED LANDLINE TELEPHONE NETWORK

FIG. 3

301 — CELL SITE

302

**CELL SITE
INFORMATION STORAGE**

1. MOBILE RADIO
   TELEPHONE REGISTER
2. REGID
3. RIDINCR
4. REGINCR
5. MOBILE RADIO
   TELEPHONE
   CONTROL FREQ
6. REGH, REGR

OVERHEAD MESSAGES

1. SYSTEM IDENTIFICATION
2. REGID
3. REGINCR
4. RADIO TELEPHONE
   CONTROL FREQ
5. REGH, REGR

FIG. 4

FIG. 5

DOCKET ALARM

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