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Kitazoe

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(54) **ENCRYPTION OF THE SCHEDULED UPLINK MESSAGE IN RANDOM ACCESS PROCEDURE**

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(51) **Int. Cl.**
H04K 1/00   (2006.01)

(52) **U.S. Cl.** **380/270**

(58) **Field of Classification Search** 380/270
See application file for complete search history.

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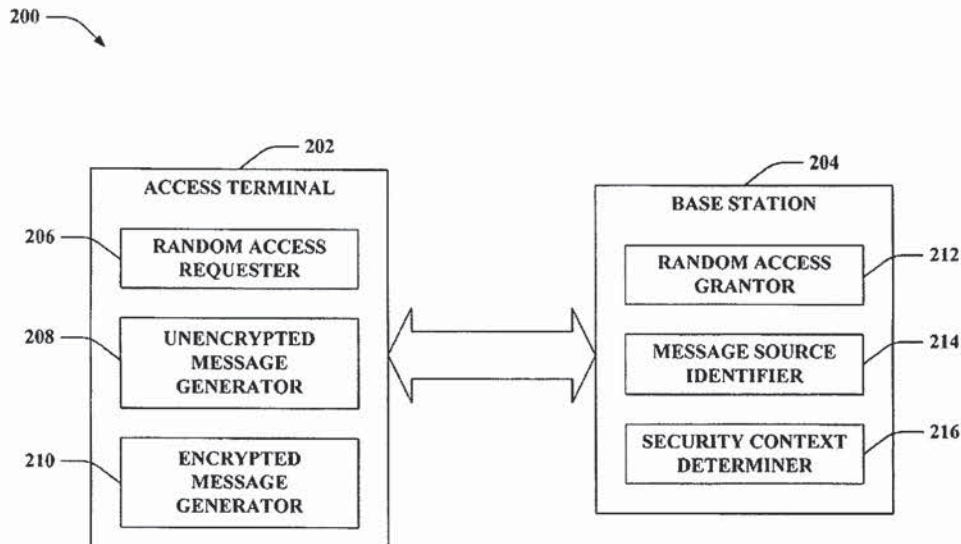
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(57)   **ABSTRACT**

Systems and methodologies are described that facilitate employing a random access procedure that leverages encrypted and/or unencrypted data in a scheduled uplink message. A random access preamble can be sent from an access terminal to a base station, and a random access response can be sent from the base station to the access terminal. A scheduled transmission message can be sent from the access terminal to the base station based upon a grant included in the random access response. When contention based random access is employed, the scheduled transmission message or a portion thereof can be unencrypted. Further, non-security-critical information can be sent in an unencrypted manner in the scheduled transmission message, while security-critical information can be encrypted for transmission (e.g., included in an encrypted portion of the scheduled transmission message and/or transmitted in a subsequent encrypted normal scheduled transmission message).
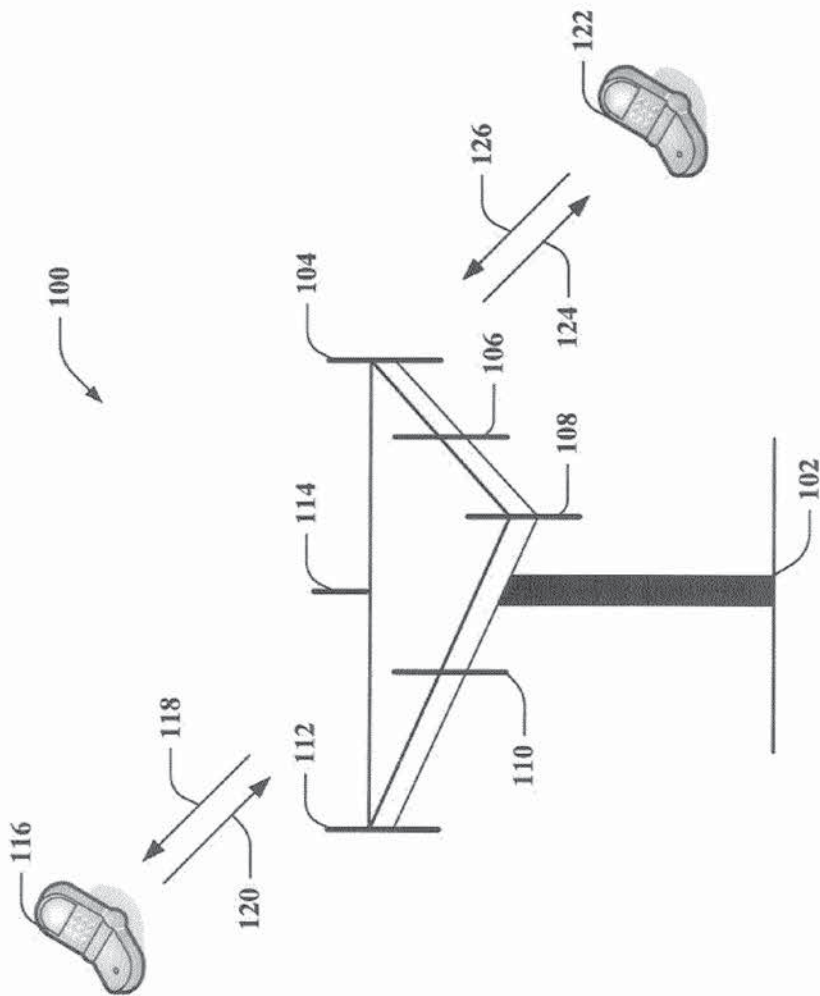
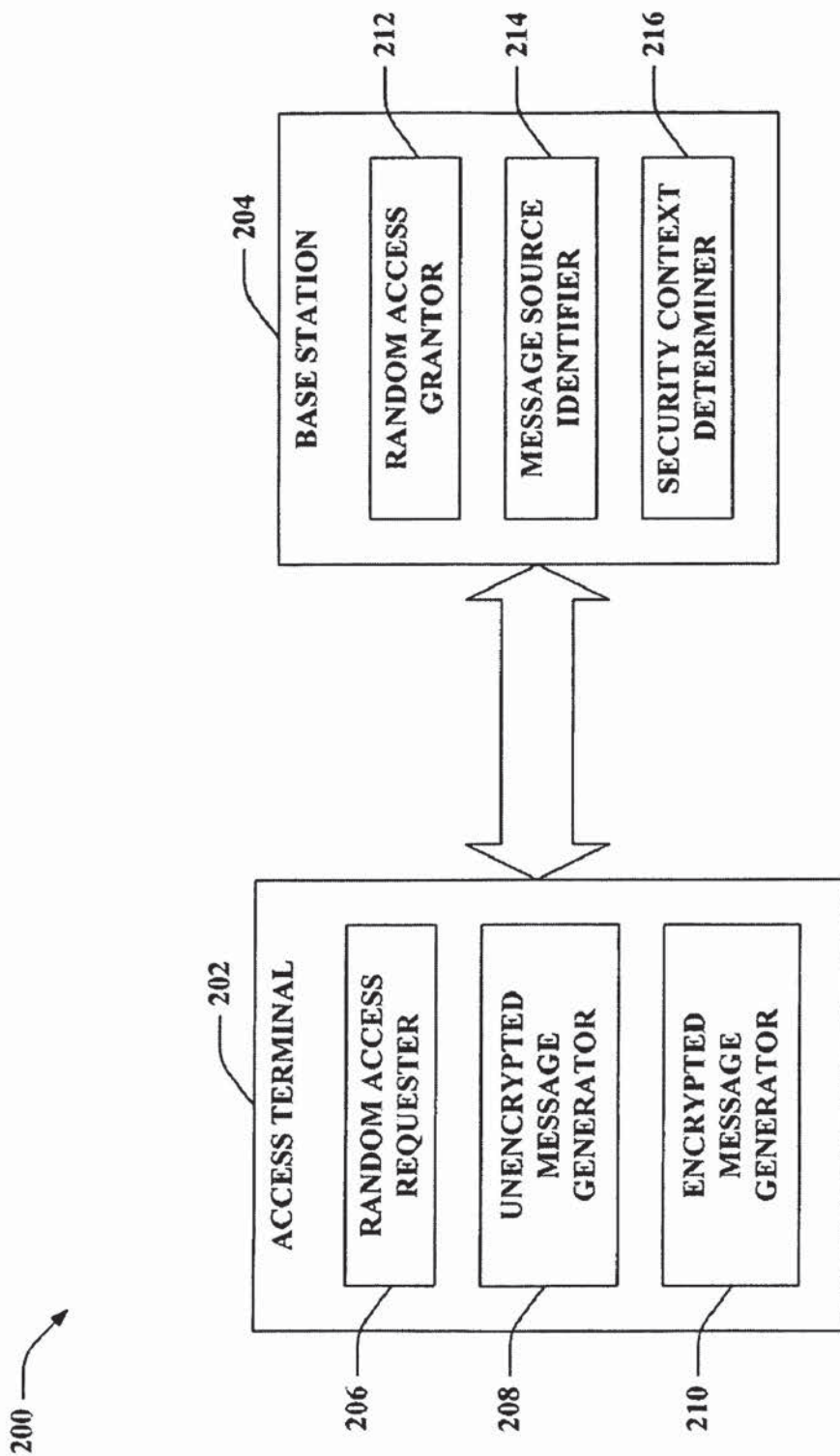**42 Claims, 14 Drawing Sheets**

FIG. 1

FIG. 2

200

202 — ACCESS TERMINAL

206 — RANDOM ACCESS REQUESTER

208 — UNENCRYPTED MESSAGE GENERATOR

210 — ENCRYPTED MESSAGE GENERATOR

204 — BASE STATION

212 — RANDOM ACCESS GRANTOR

214 — MESSAGE SOURCE IDENTIFIER

216 — SECURITY CONTEXT DETERMINER

300

AT   BS

302 ——RANDOM ACCESS PREAMBLE——→

304 ←——RANDOM ACCESS RESPONSE——

306 ——SCHEDULED TRANSMISSION——→

308 ←——CONTENTION RESOLUTION——

FIG. 3

400

AT

SERVING
BS

NON-
SYNCHRONIZED

402 ——RANDOM ACCESS PREAMBLE——→

404 ←——RANDOM ACCESS RESPONSE——

406 ——MESSAGE 3 (UNENCRYPTED)——→

408 ←——CONTENTION RESOLUTION——

410 ——NORMAL SCHEDULED TRANSMISSION (ENCRYPTED)——→

FIG. 4

DOCKET ALARM
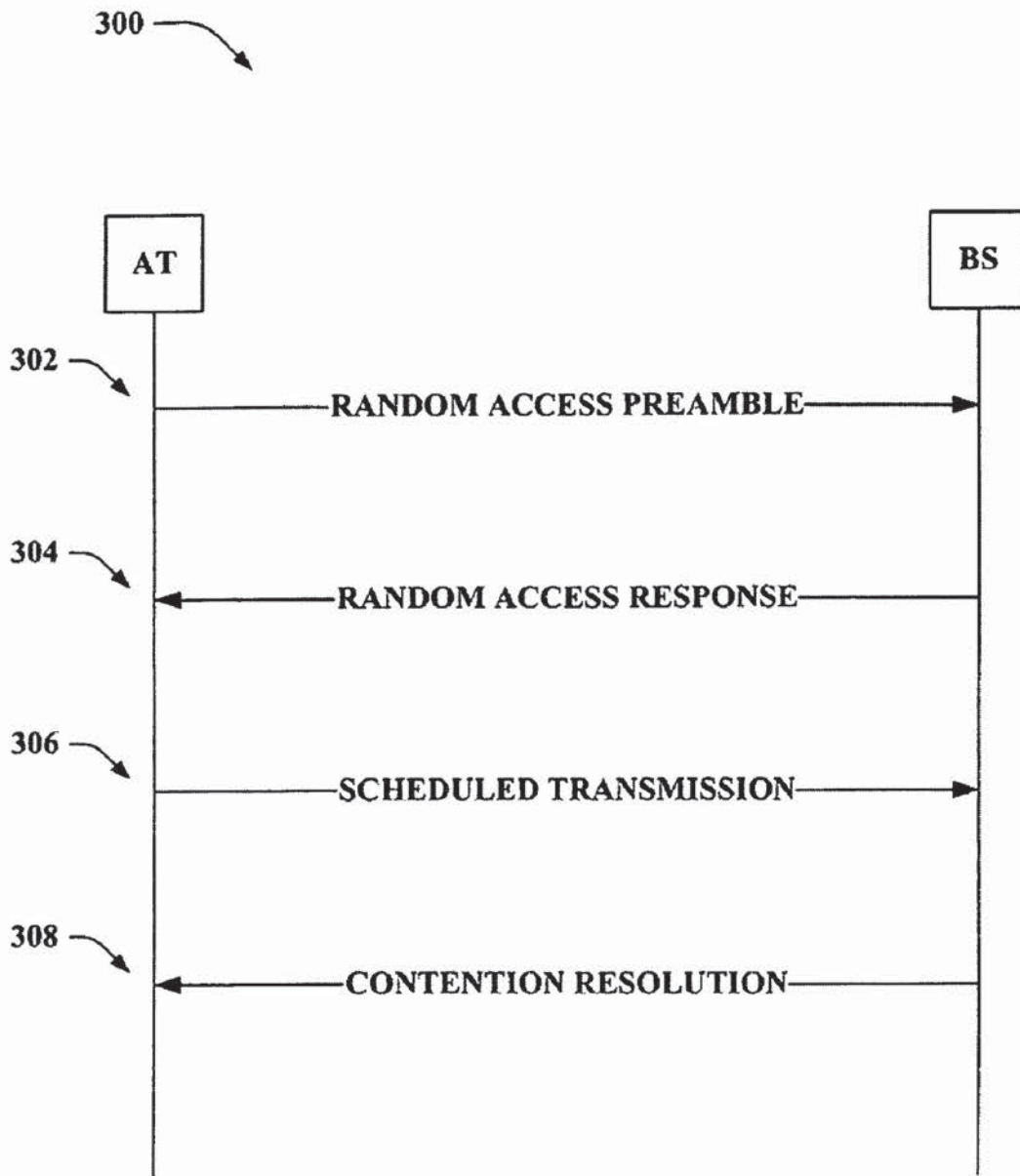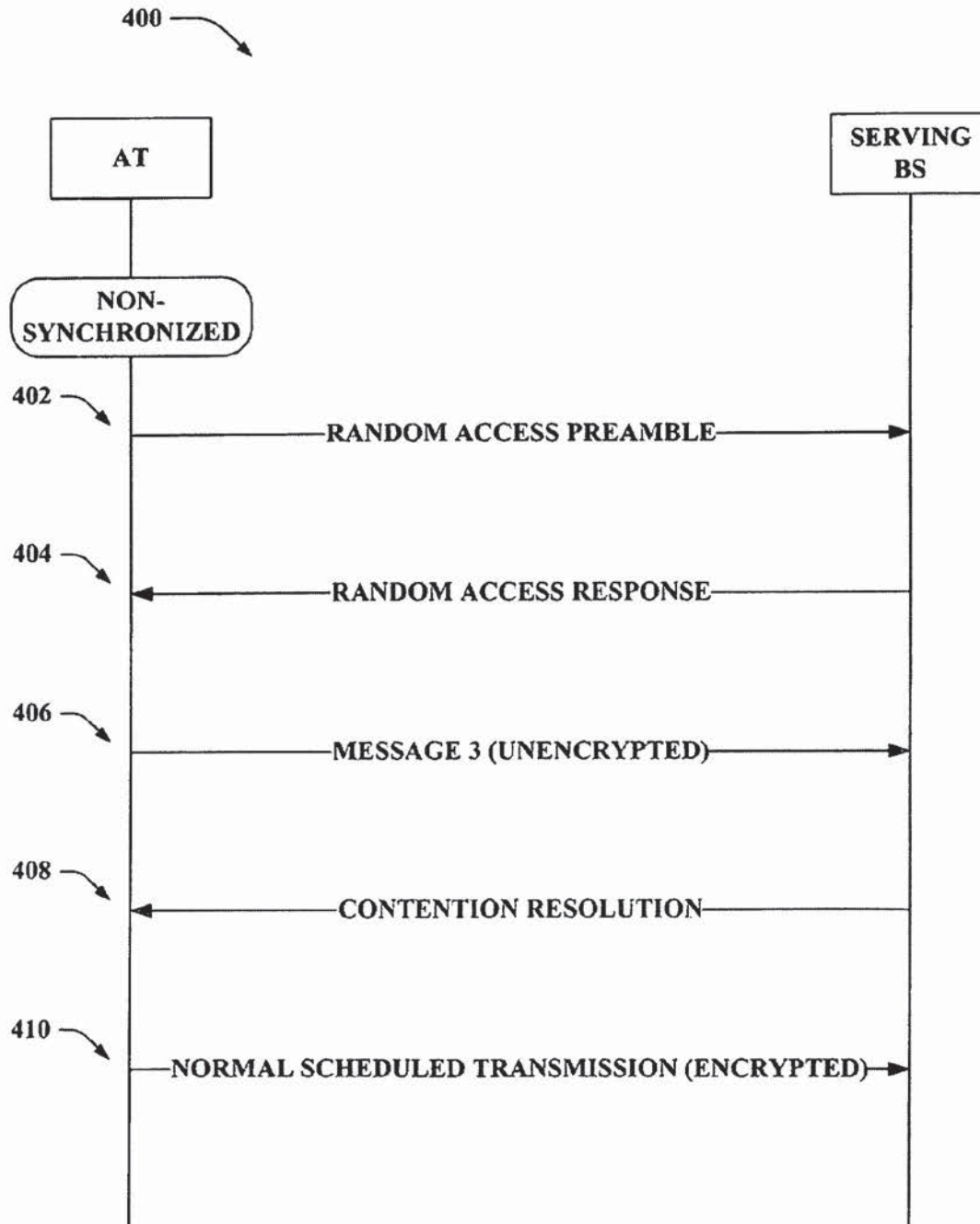
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