

(12) **United States Patent**  
**Amalfitano et al.**

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(54) **METHOD AND APPARATUS FOR A SPECTRALLY COMPLIANT CELLULAR COMMUNICATION SYSTEM**

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(22) Filed: **Dec. 20, 1999**

(51) **Int. Cl.**<sup>7</sup> ..... **H04B 7/216**

(52) **U.S. Cl.** ..... **370/335; 370/342; 455/450**

(58) **Field of Search** ..... **370/335, 342, 370/329, 341, 441; 455/450**

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*Primary Examiner*—Edward F. Urban

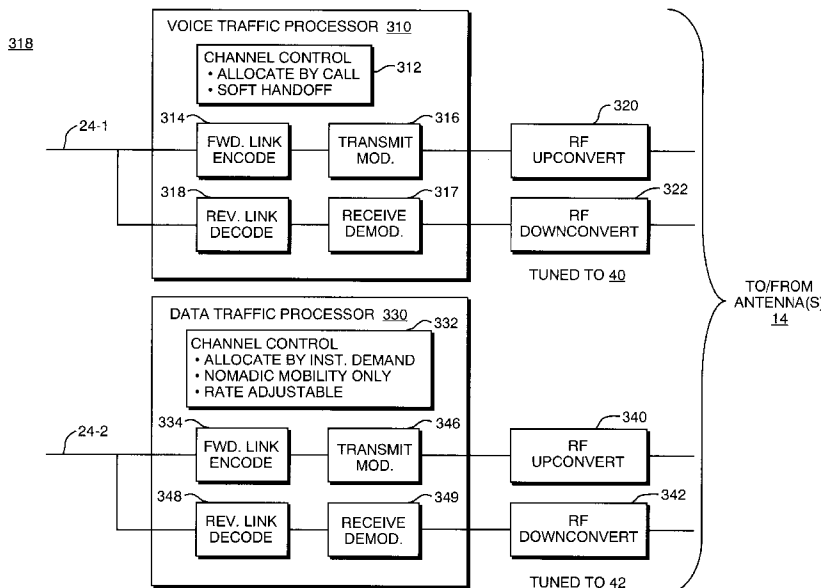
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(57) **ABSTRACT**

A system for wireless data transmission that uses a channel bandwidth, channel separation, and radio frequency power spectrum which is compatible with existing deployments of wireless voice services. The transmitted waveforms are thus compatible with existing cellular networks. However, the time domain digital coding, modulation, and power control schemes are optimized for data transmission. Existing cellular network sites can thus be used to provide a high speed service optimized for wireless data traffic without the need for new radio frequency planning, and without interfering with existing voice service deployments.

**12 Claims, 6 Drawing Sheets**



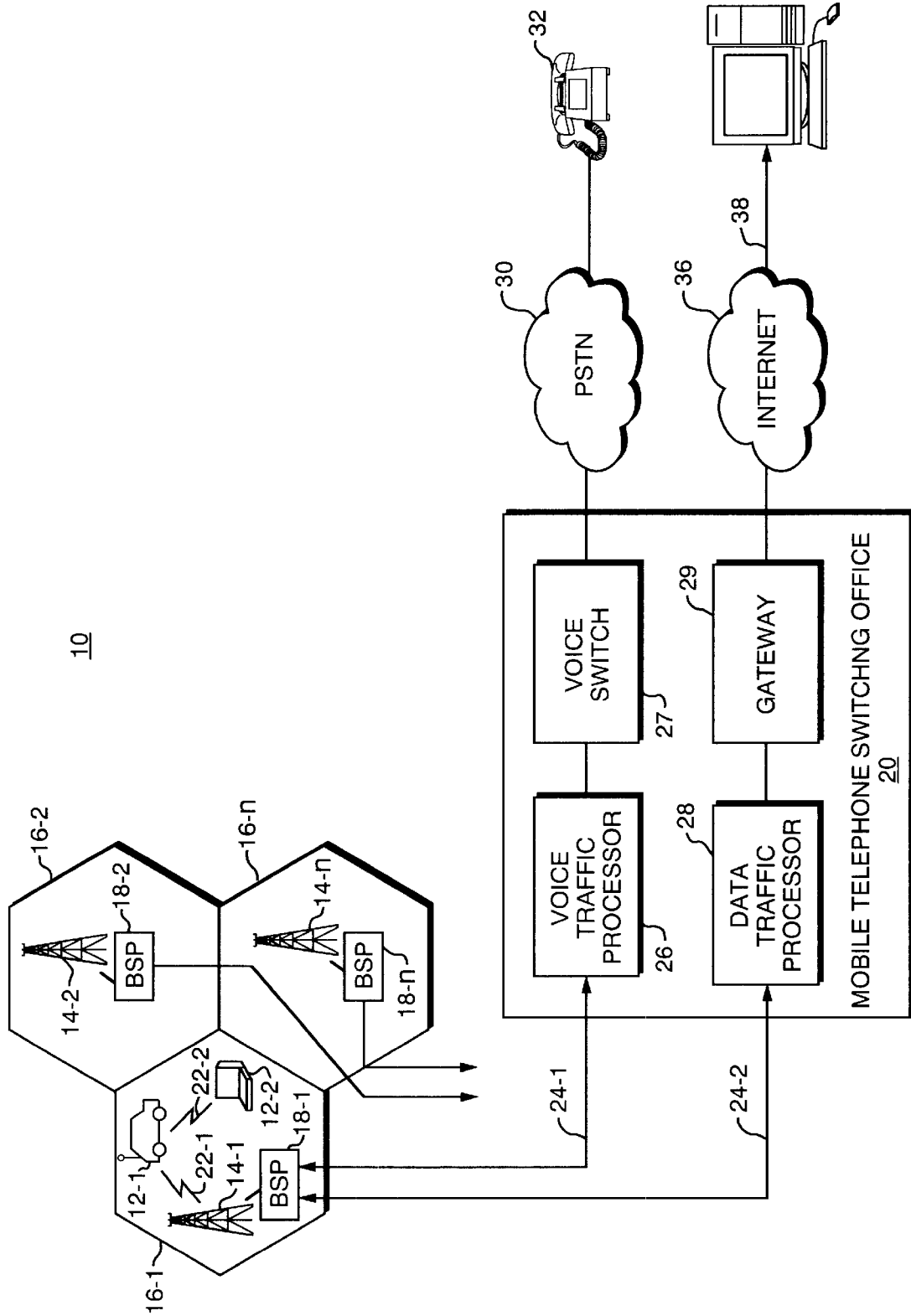


FIG. 1

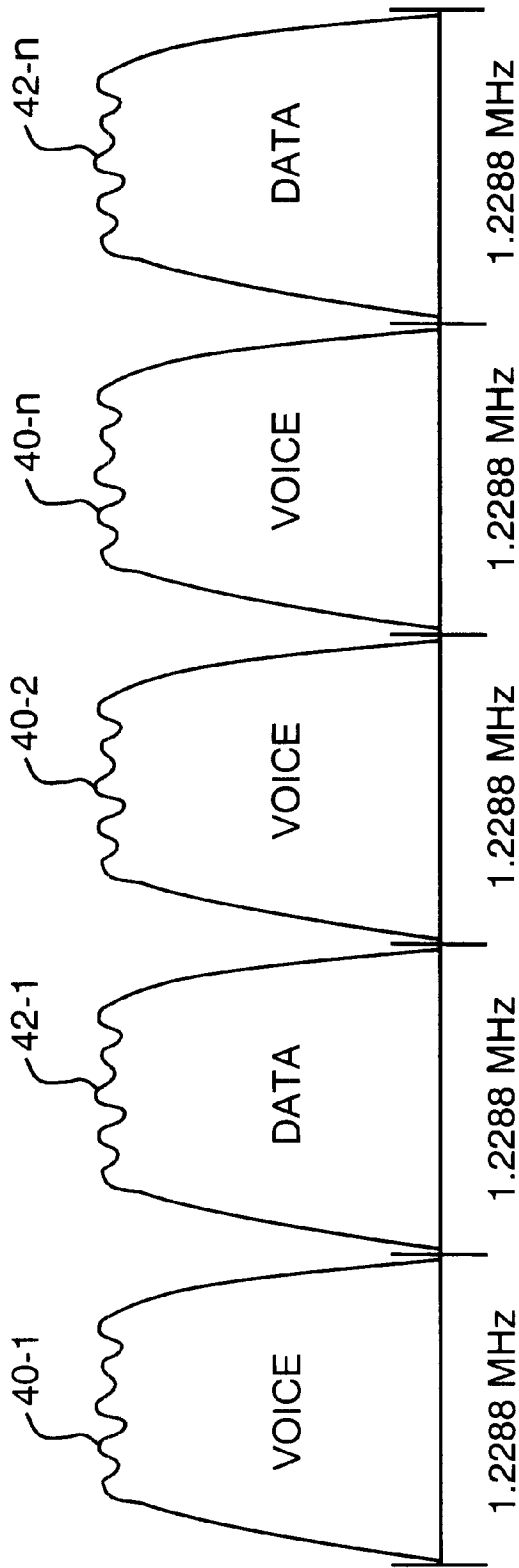


FIG. 2

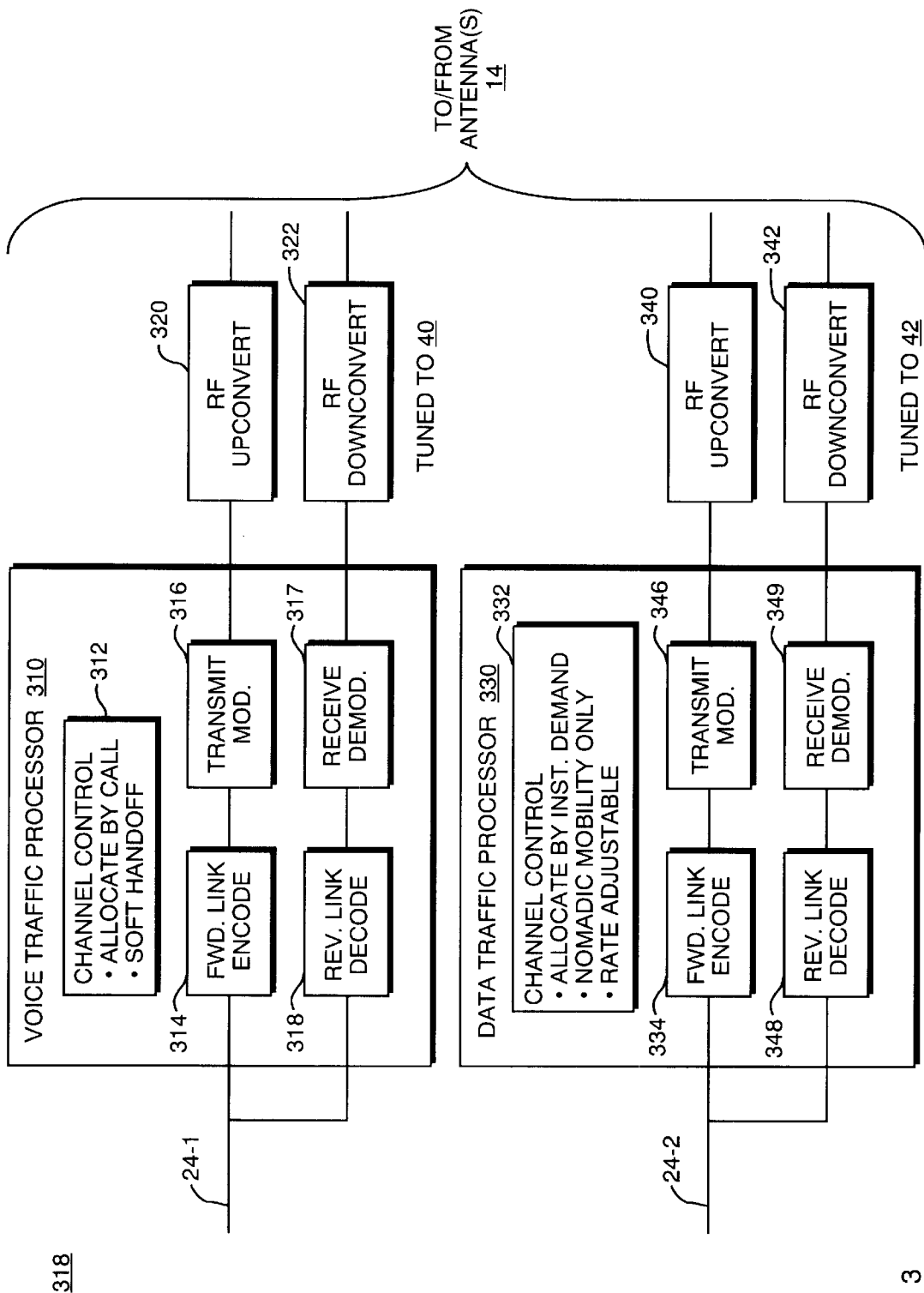


FIG. 3

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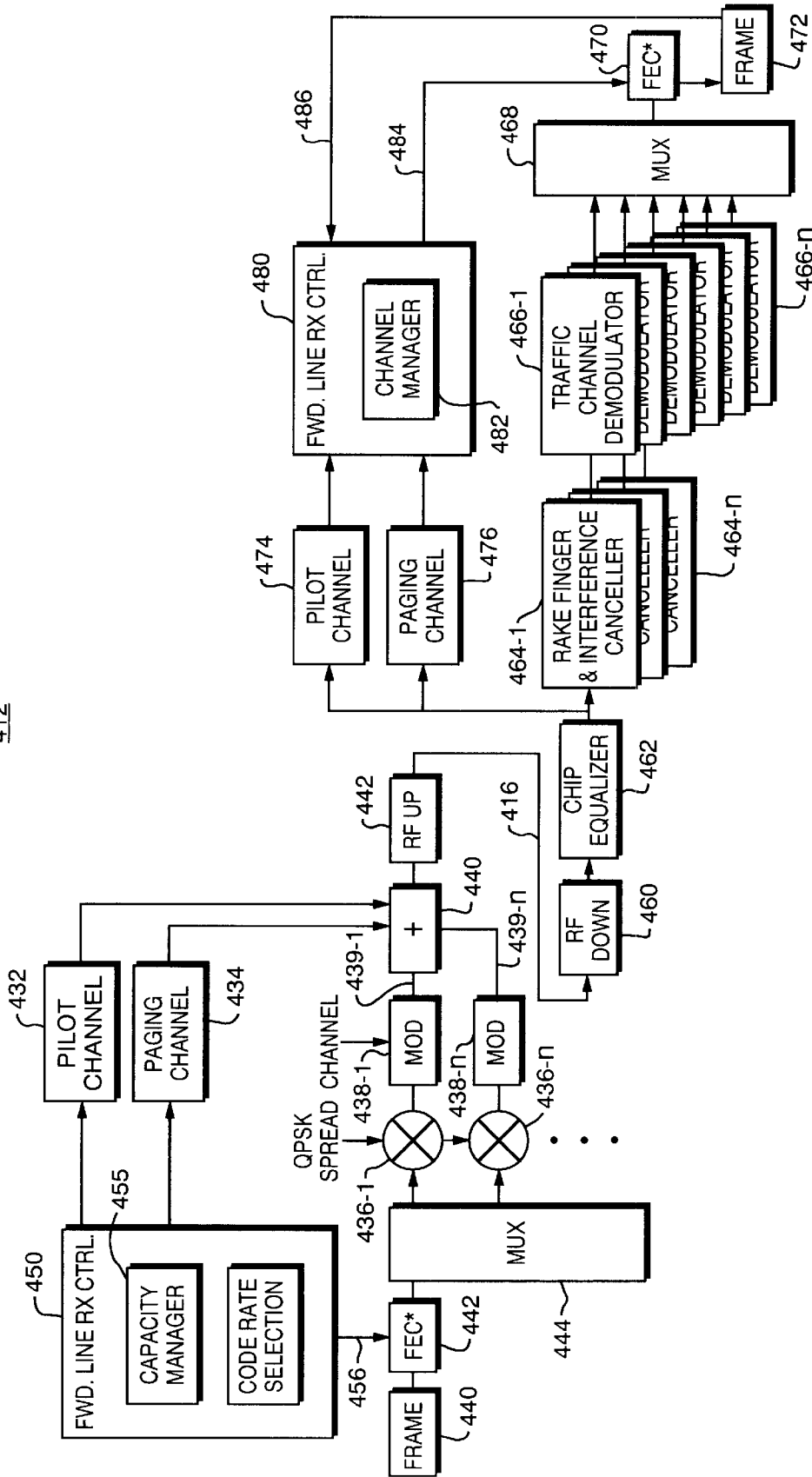


FIG. 4

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