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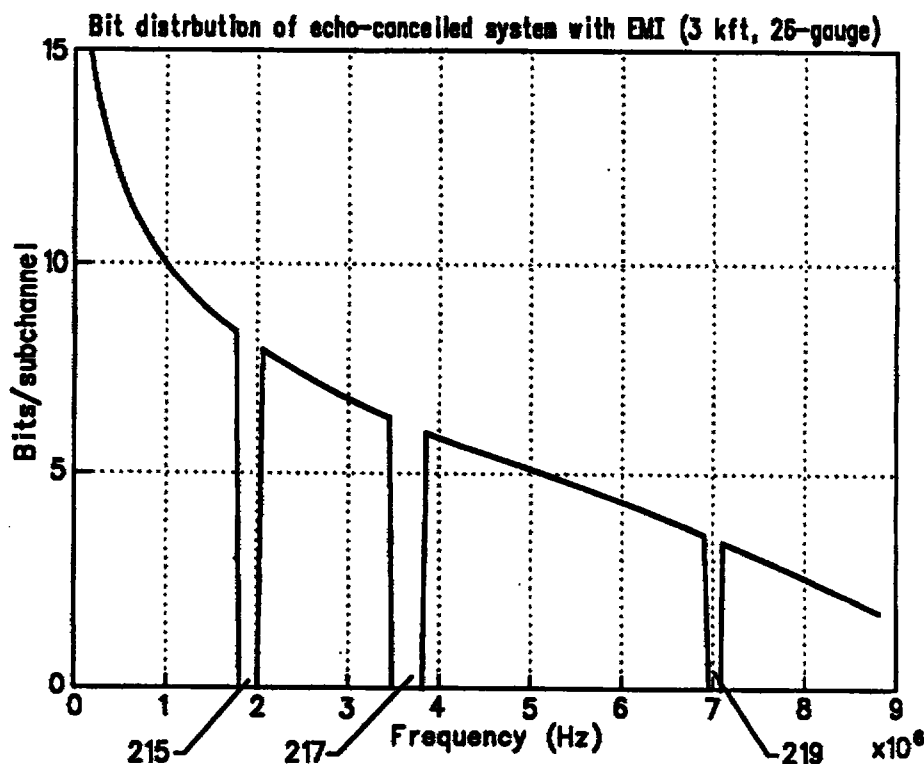
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(54) Title: IMPROVED ADSL COMPATIBLE DISCRETE MULTI-TONE APPARATUS ✓

(57) Abstract

A transmission scheme contemplates encoding and modulating digital data onto a discrete multi-tone signal having a total bandwidth of at least 1.6 MHz. The modulation system dynamically updates the subcarriers used and the amount of data transmitted on each subcarrier during transmission (215, 217, 219). In one embodiment, the multi-tone encoding and modulation complies with the ATIS North American Asymmetric Digital Subscriber Lines standard. However, additional subchannels (a total of 512) and/or subchannel bandwidths of greater than 4.3125 kHz may be used. In this system, the subchannels occurring above frequencies set forth in the standard are treated similarly to those within the standard range in terms of subcarrier selection criteria. This system permits transmission of digital data at transmission rates of 6-55

Mbps over twisted pair lines at distances of 1200 meters on lines experiencing significant crosstalk noise such as T1 or E1 (215, 217, 219), as well as at transmission rates of 10-50+Mbps over distances of 2000 meters.



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