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copy.(54) Title: **LINEARIZED DIGITAL AUTOMATIC GAIN CONTROL** ✓

(57) Abstract

The present invention provides linear, digital automatic gain control (AGC) in a radio. A received signal is demodulated to provide I and Q digital baseband signals. A received signal strength indication is determined from these signals and the resulting digital signal is adjusted to provide a logarithmic response (205). This signal is then integrated (210) to provide a digital receive AGC adjust signal. For the transmit AGC adjust, the digital receive AGC adjust signal is filtered (215) and then summed (270) with a scaled (260) closed loop power control command (265). The closed loop power control commands (265) are ignored (220) if they would result in increasing the transmit gain beyond the amplifier's designed maximum output. The outputs of the transmit and receive AGC amplifiers are linearized by transmit and receive linearizers, (225) and (240) respectively, which pre-distort the digital AGC adjust signals prior to digital to analog conversion (230) and (245).

