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(54) **APPARATUS FOR SUPPORTING AMPLIFICATION AND PROCESSING OF RF SIGNALS CORRESPONDING TO A COMBINED SPECTRUM THAT INCLUDES LEGACY BANDWIDTH AND ADDITIONAL EXTENDED BANDWIDTH**

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(57) **ABSTRACT**

A radio frequency (RF) amplifier assembly includes modular amplification and processing units, which can be easily installed or replaced in the housing of the RF amplifier assembly, e.g., in response to changing needs and/or changing capabilities in the cable network communications system. The RF amplifier housing facilitates, e.g., via slots with connectors, accepting and coupling of alternative modular units, which can be installed/removed. The RF amplifier assembly includes a first spectrum (e.g., legacy spectrum) amplification and processing circuit, supporting both upstream and downstream signaling. The RF amplification assembly further includes one or more optional additional (extended) spectrum amplification and processing circuits, which are removeable modular units, and which support downstream signaling over extended spectrum. The RF amplifier assembly further includes spectrum splitter/combiner circuits, e.g., implemented in some embodiments using a diplexer-less design, for splitting/combining spectrum blocks with regard to multiple amplification and processing circuits installed within the RF amplifier assembly.