Invention Title:	Multi Port Set Top Box for Multimode operation
Invention Summary:	As the US frequency range of DOCSIS expands from 42 to 85 and beyond, there is a need to protect the input of the set top box from upstream bursts from in house or neighboring CMs, which would cause the RF input of the Set top box to saturate or for the AGC module to misbehave. A typical solution would be to use a switchable diplex filter, which is a solution that increases cost and backend support complexity.
Invention Description:	In this invention, we propose that the set-top box be equipped with multiple RF inputs (for example 2 RF inputs) with in line filtering that prevents RF front end saturation based on the US split. For example, for a network that is currently operating the US at 85 MHz, and future plans to operate at 204 MHz; Set top boxes designed to operate in this network would have two RF input ports. The first input port has a frequency range of 108 - 1 GHz, the second input port has a frequency range of 258 - 1 GHz. When the network is upgraded for the US to operate up to 204 MHz, the set top boxes are connected to the second port (258 - 1 GHz) to prevent RF input saturation and AGC misbehavior The multiple inputs are connected to the same receiver RF chain via an internal RF combiner and each input has in line filtering. In the previous example, the 258 MHz input port would have RF filtering between 108 and 258 MHz to prevent front end saturation from US transmissions in the 108 - 205 MHz.
Invention Commercial Value/Customers:	This simplifies the design for set top boxes that are to be future proofed to network upgrades, also the MSO would not need special SW builds or firmware deployment backend to enable the update of set top boxes that use programmable diplex filters
Invention Differences:	This uses a simple method of a splitter and inline filtering, rather than the cost and complexity of switchable diplex filters