CW Synth Filters for Mixing vol.1

Cupwise Nebula library

General Info

This release contains programs for Nebula which were sampled from three very different Eurorack synth filter modules. I didn't sample them to produce programs for use as synth filters, but instead for use in typical mixing or sound design applications that require the use of high pass or low pass filters, so they are optimized for this purpose. This means they were built to have filtering with sampled dynamics and harmonics, all contained in the same program.

The filters do not offer smooth, fully variable adjustment of the cutoff frequency (so you can't do filter sweeps with them), but instead you can switch between fixed positions which are fairly close together, ensuring that you should always be able to get a setting that fits what you need.

There are programs for both HP and LP filter types from all three modules, as well as a band-pass from two of them, and a notch from the other. There are 'clean' versions which use less resources and 'full' versions which use more but add dynamics and usually also add harmonics. You can switch between these two versions by clicking a button on the GUI without losing your filter settings.

Installation

There are two main steps to the installation-

1) Install the programs/vectors. Just copy the .n2p files to your Nebula 'programs' folder, and the .n2v files to the 'vectors' folder. Before moving on to the skin install, check to see that the programs load properly in default Nebula, by loading them from Nebula's program finder. The programs are in the 'FLT' category, then the 'CM4', 'CM5', 'CM8', or 'CM9' categories, for each sample rate. 'CM5' is for the 48khz rate.

2) To install the skins, follow the section of the skin installation manual relating to either Nebula 3 or Nebula 4, depending on which you're using. After installing the skins you will be loading these programs as a unique plug-in, so don't ever load them from the default Nebula and its program selection list again! The program buttons will not work if you do!

Info on the Modules and Filter Programs

◆ I call the first filter "S-Slope". It's sampled from a licensed remake of a filter from a very well known, early line of synth modules from the 1970s. This filter's selling point is its variable slope control, which allows you to dial in the steepness of the slope. I built this module myself from a kit, and it uses very high quality components which result in a clean, precise sound, with almost no harmonics. To get harmonics for the full versions of the programs I had to get them from an entirely separate sample session where I patched the filter output into a "wave multiplier" (wave folder) module from the same product line, and used subtle wave folding to generate the harmonics.

S-Slope HP – This is a high-pass filter program, with sampled cut-off points at: 15, 30, 40, 50, 60, 70, 85, 105, 150, 195, 240, 285, 390, 460, 510, 660, 850, and 1000Hz.

S-Slope LP – A low-pass filter program with cut-off points at: 200, 270, 390, 520, 730, 1000, 1400, 1900, 2500, 3100, 4200, 5500, 7000, 9000, 12000, 15000, 18000, and 22000Hz.

S-Slope BP – A band-pass filter with center freq points at: 15, 30, 50, 70, 85, 105, 150, 195, 240, 285, 390, 460, 510, 660, 850, 1000, 1400, 1900, 2500, 3100, 4200, 5500, and 7000Hz. The full version of this one is the only program in the collection that has no harmonics (but does have dynamics).

- ◆ Next is what I'm calling the "AST" filter. The actual module is packed with endless possibilities for sound design, and the circuit is built around two CoolAudio V2164 quad VCA chips. The filter has multiple LP and BP outputs that give different results, loads of switches that change the behavior in various ways, and some knobs that also alter the filter shape as well as the harmonic content. It's a beast that can go from slick and precise filtering, to nuclear chaos (sadly Nebula can't recreate the intense distortion).

AST HP – The AST high-pass program. It's the only program in the entire collection that doesn't have a 'width' control. The module does have an output labeled "HP" but I found that it doesn't actually give you a high-pass, but rather another band-pass. So to get the high-pass I mixed one of the LP outputs with the inverted dry signal inside the modular system. You get these cut-off points: 15, 30, 40, 50, 70, 85, 105, 150, 195, 240, 285, 390, 460, 510, 660, 850, and 1000Hz.

AST LP1 – The first low-pass program for the AST filter. This one has a steeper slope than the other one. Cut-off points: 200, 260, 390, 520, 730, 1000, 1400, 1900, 2500, 3100, 4200, 5500, 7000, 9000, 12000, and 15000Hz.

AST LP2 – This "leaky" LP lets through some of the signal above the cut-off point which would normally be filtered out. Cut-off points are identical to LP1.

AST BP – The band-pass. Cut-off points: 15, 30, 50, 70, 85, 105, 150, 195, 240, 285, 390, 460, 510, 660, 850, 1000, 1400, 1900, 2500, 3100, 4200, 5500, and 7000Hz.

- ◆ The "Stinger" is the last filter. It was sampled from a module 'clone' of the late 70's Wasp synthesizer's filter, which has a unusual design and sound. Keep in mind that this filter always rolls off some of the bass frequencies, starting around 100Hz going down, so that your input will be rolled off by about -1dB by 50Hz. This really only affects the LP and Notch programs (since you're cutting bass with the HP anyway).

Stinger HP – The high-pass with these cut-off points: 15, 30, 40, 50, 60, 70, 85, 105, 150, 195, 240, 285, 390, 460, 510, 660, 850, and 1000Hz.

Stinger LP – The low-pass has these cut-offs: 200, 270, 390, 520, 730, 1000, 1400, 1900, 2500, 3100, 4200, 5500, and 7000Hz. The LP can't be set any higher with the module, unfortunately.

Stinger Notch – I decided to sample the notch from this filter instead of doing another band-pass. Cut-off points: 48, 82, 130, 175, 219, 260, 330, 390, 485, 550, 665, 750, 930, 1100, 1310, 1510, 1780, 2150, 2430, 2900, 3500, 3880, 4300, 4930, 5780, 6900, 8000, and 10000Hz.

User Interface/Controls
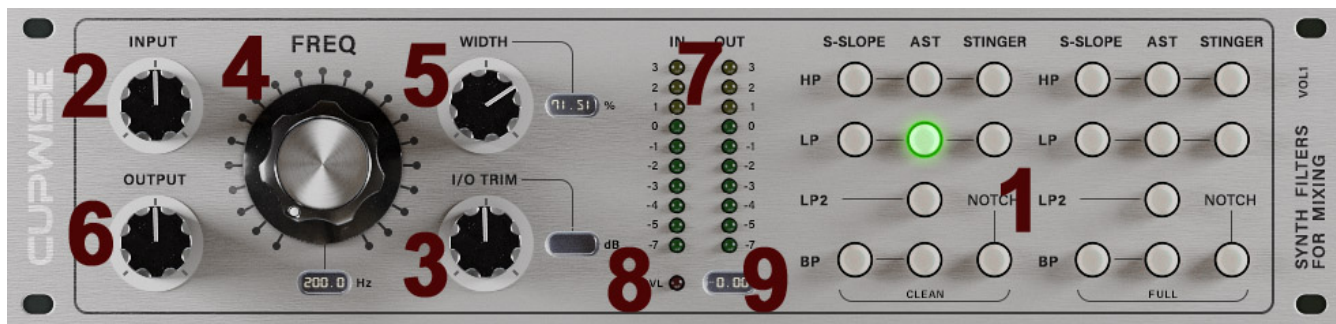
1) **Program Selection Matrix –** The clean programs are grouped on the left side, and the full ones on the right.
2) **Input –** I recommend you use the trim control instead of this one.
3) **Trim –** Use this control for more or less input drive from the filters. More drive means higher harmonics levels. Whatever amount of boost or cut you apply here is compensated for at the output automatically, so the overall level should stay the same. This allows you to more easily hear any tonal change you may get by adjusting trim. It's disabled for the clean programs.
4) **Freq –** Use this to select between the cut-off points.
5) **Width –** Like a typical Q control. Max setting gives a sharp cut-off with a resonant hump with around 2-3dB of gain, while the lowest setting gives a broad sloped cut-off in most cases. Stinger filters always have some resonant boost at the cut-off.
6) **Output –** Just a simple output gain control.
7) **In and Out Meters –** These are VU meters.
8) **Overload –** Lights up if your signal going in or out of Nebula is too hot.
9) **Input Peak Hold –** The peak input indicator shows your loudest input level (in dBFS) and holds it for a while. Keep an eye on this and don't go past 0dbfs. The sampled dynamic range ends beyond 0dBFS so there's no reason to go past it, and you can get bad results if you do.

## About the Clean and Full programs

The clean versions have no dynamics or harmonics, and use less CPU/RAM and load faster than the full versions. They are still perfectly fine to rendering with and are a great option if you want the cleanest possible result. They're also great for setting up the filter how you want, then you can switch to the full version later when you're ready to render. The full versions introduce dynamics, and harmonics in all but one case (S-Slope BP). You can drive the programs really hot to get noticeable harmonics but be careful to never exceed 0dBFS. You can watch the peak hold indicator to see what your hottest input levels are.

Graphs (made with the 96khz programs)

This graph shows all of the selectable cut-off points for the S-Slope HP program, with width set to 100%:
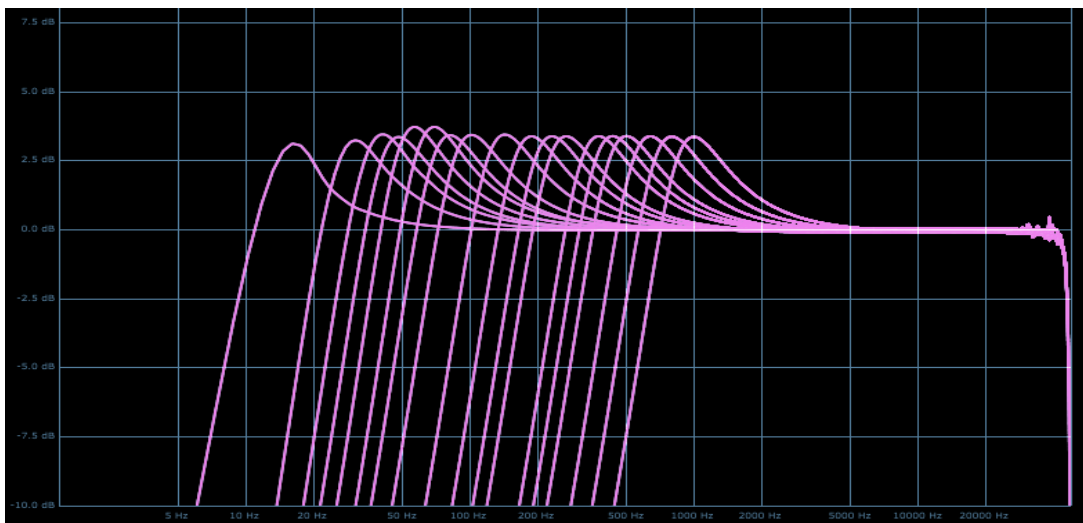
This one shows a single cut-off position of the S-Slope HP, with different amounts of width from 0 to 100%. Keep in mind that the width controls are fully variable in all programs.
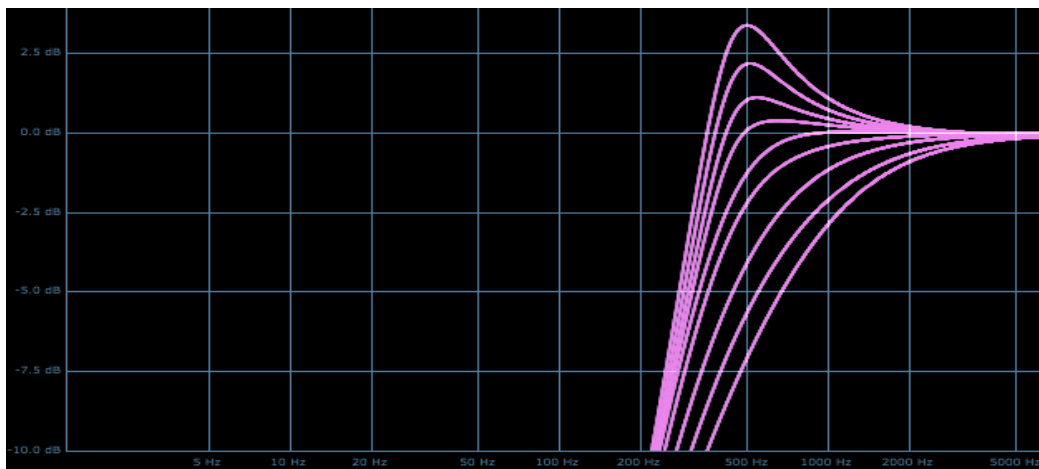
Next one shows all selectable positions of S-Slope LP cut-off, width at 100% always.
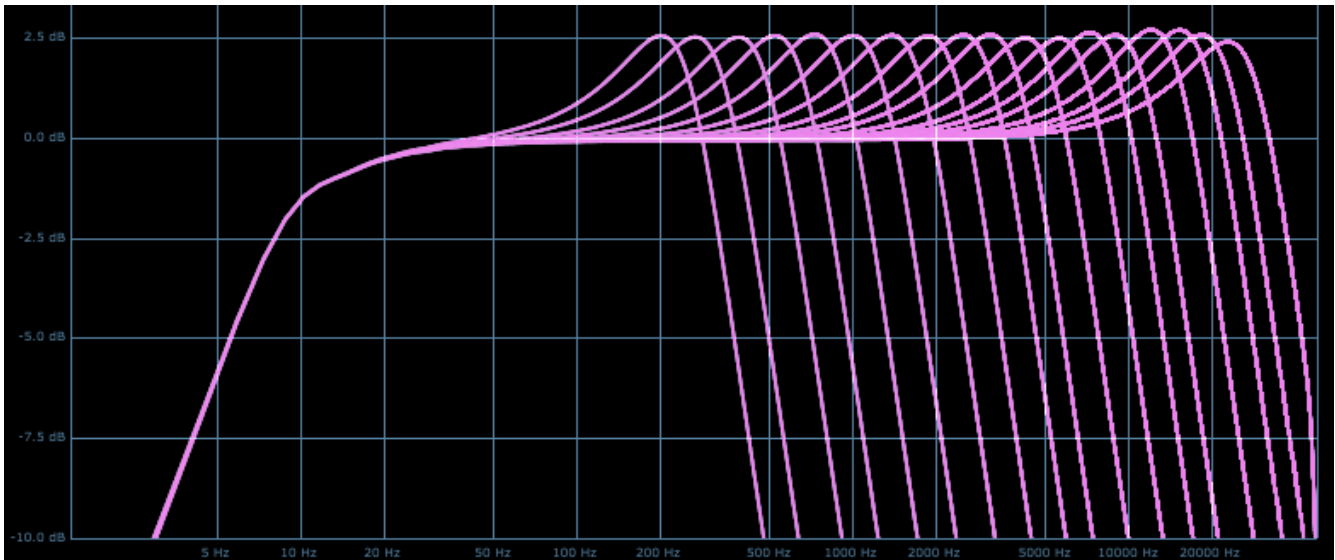
S-Slope LP, showing the width control as it goes from 0 to 100%.
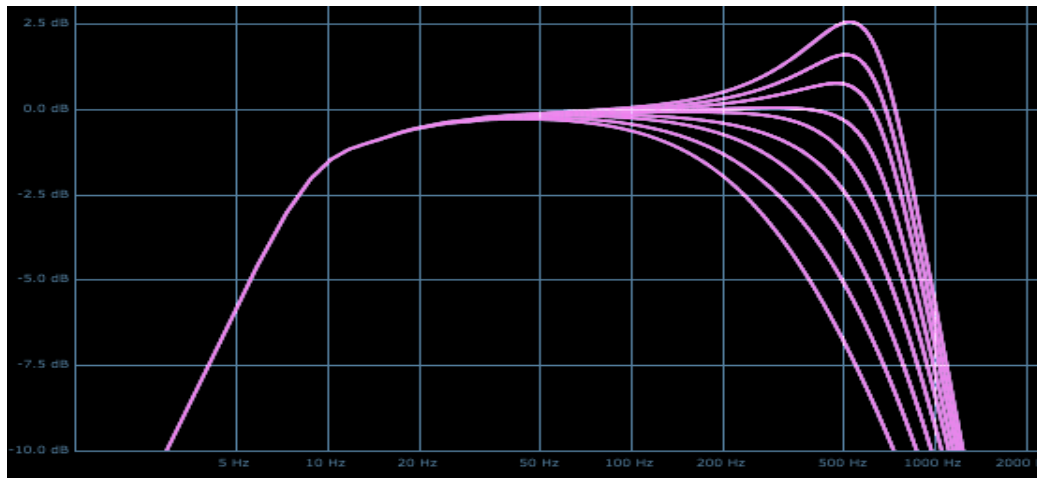
Next graph is S-Slope band-pass filter, all selectable center frequencies, with width at 100%.
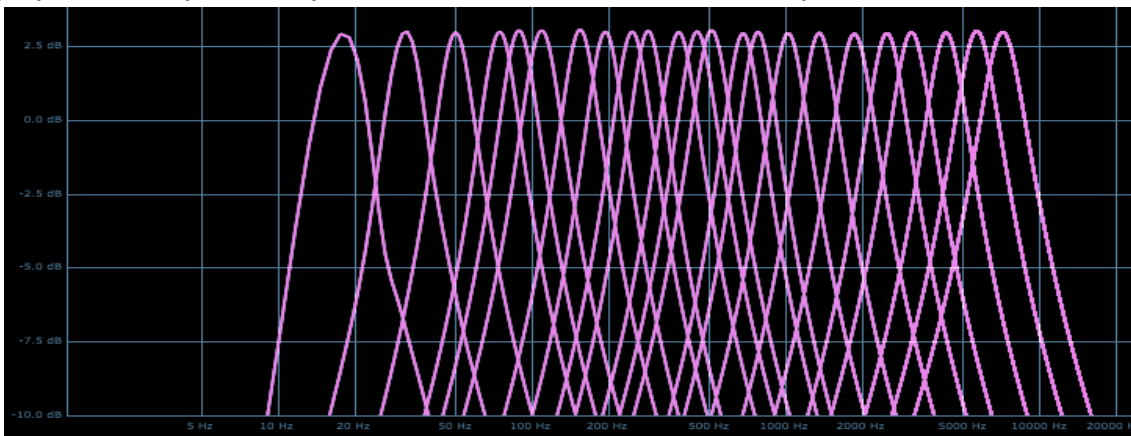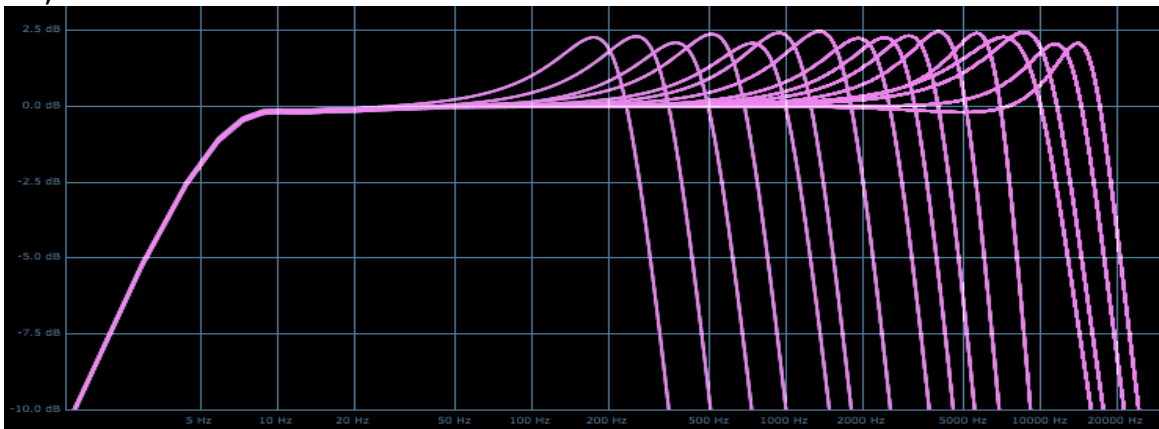
This one shows the S-Slope, one center freq selected, the range of width from 0 to 100%.
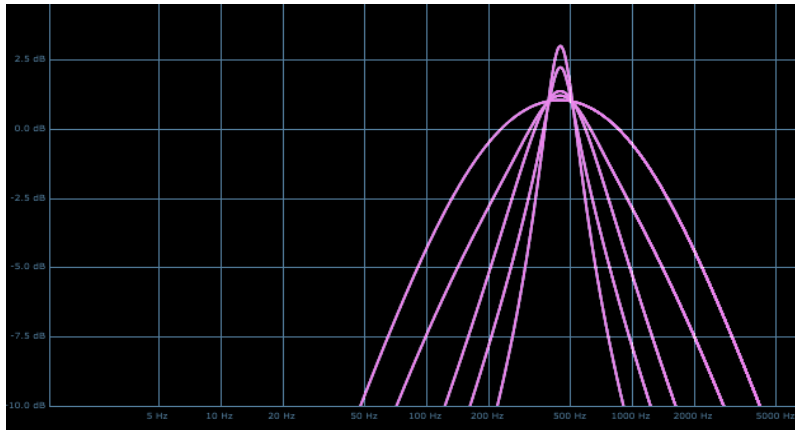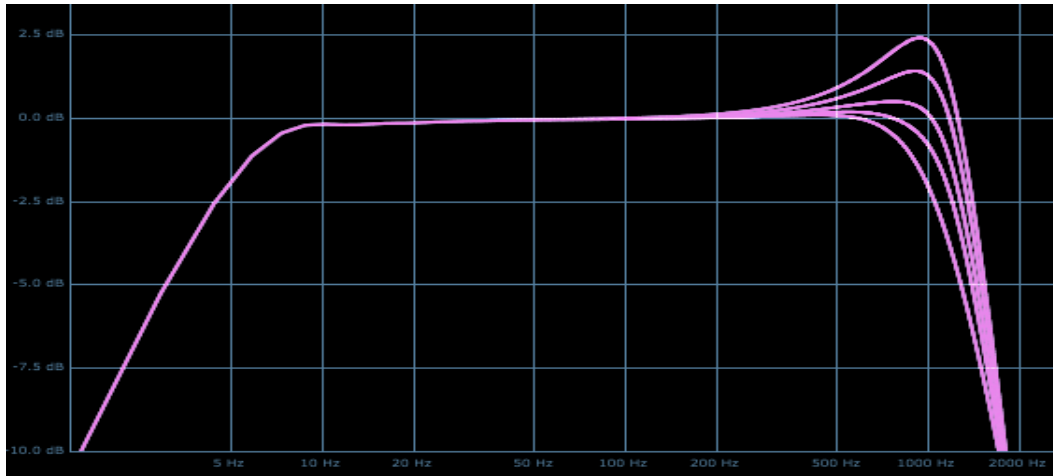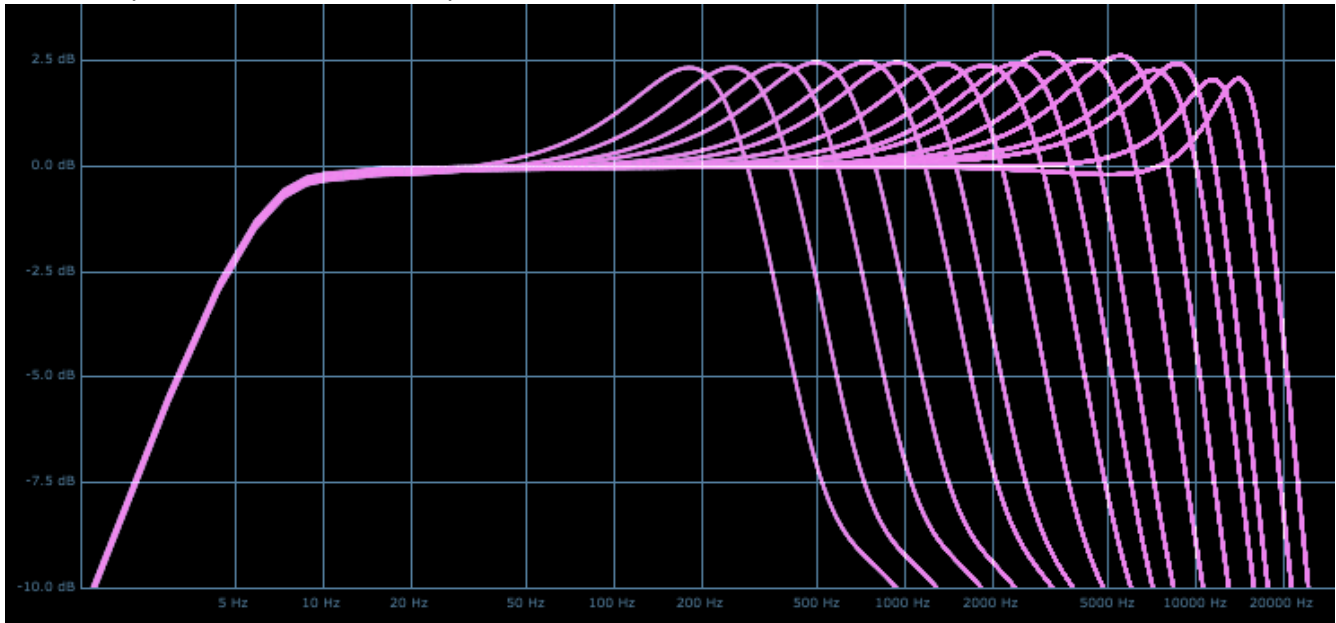

Next, AST HP filter, all selectable cut-off settings.
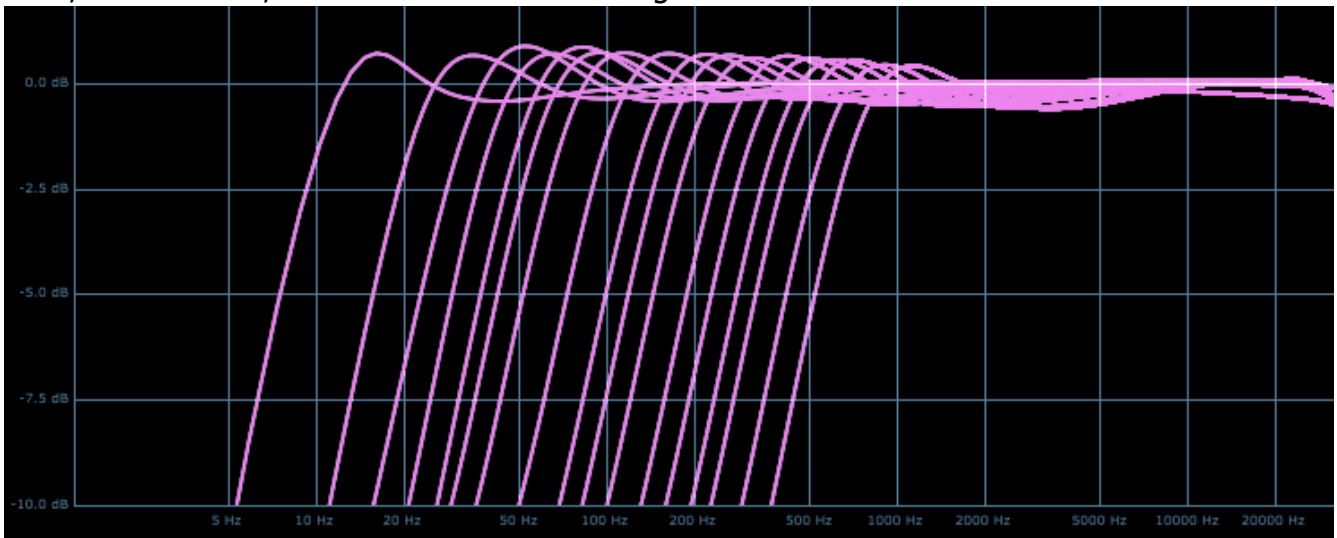
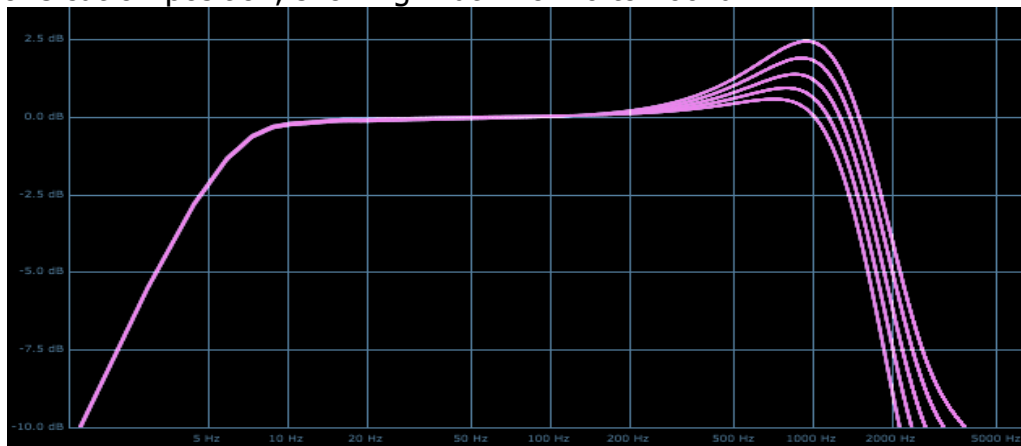
AST LP 1, all selectable cut-offs with width at 100%.

AST LP 1, one cut-off selected, showing the range of width from 0 to 100%.

AST LP 2, all selectable cut-offs, width = 100%.

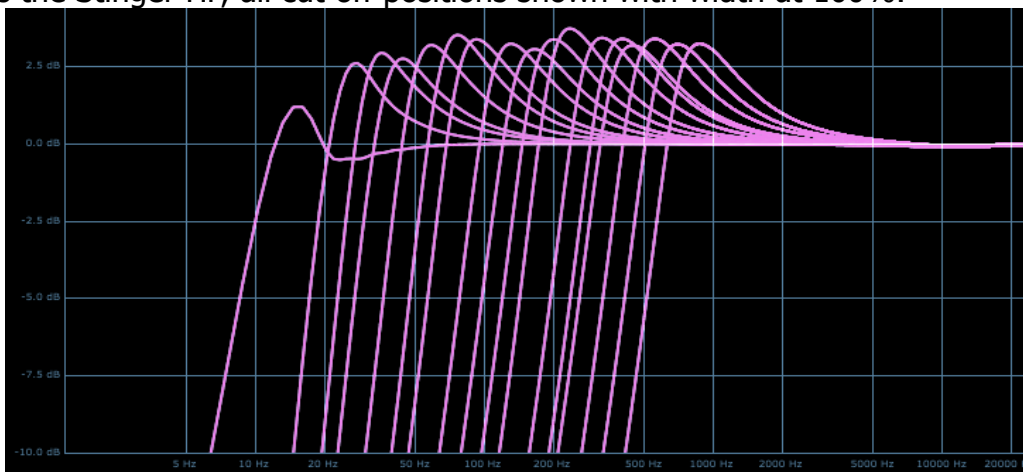AST LP 2, one cut-off position, showing width from 0 to 100%.

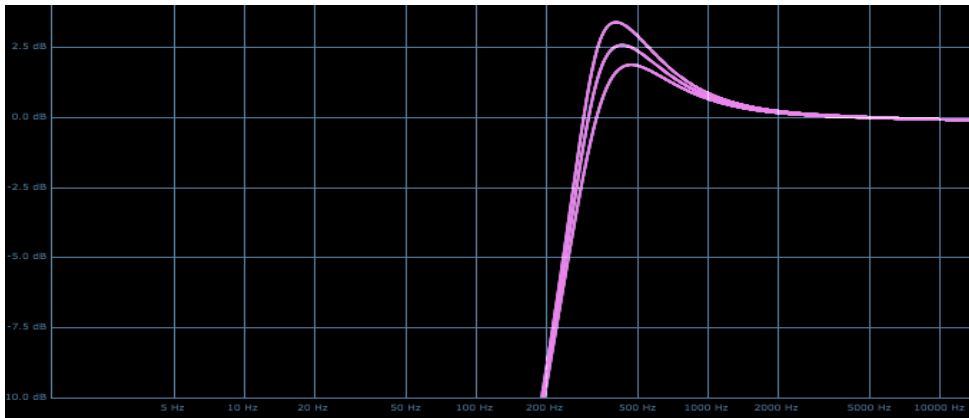AST BP, all center frequencies shown.
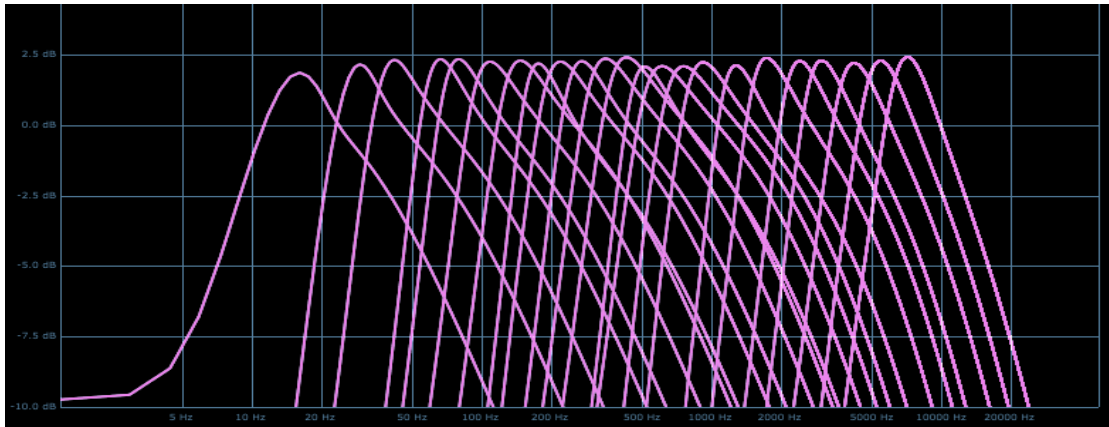
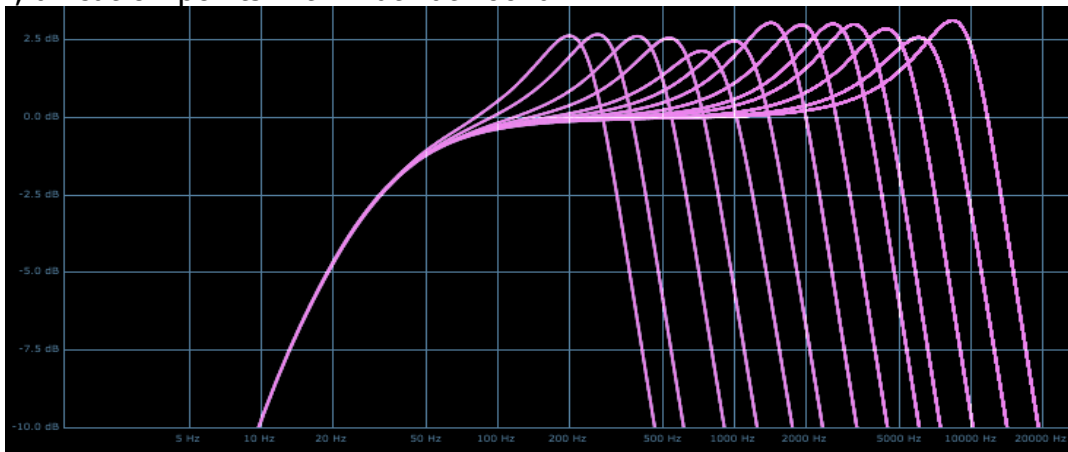AST BP, one center position, width from 0 to 100% shown.
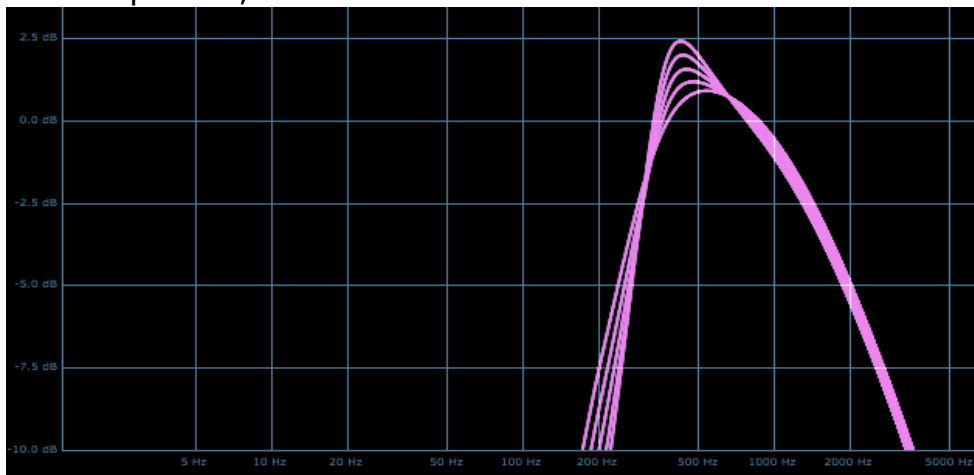
Next one is the Stinger HP, all cut-off positions shown with width at 100%.
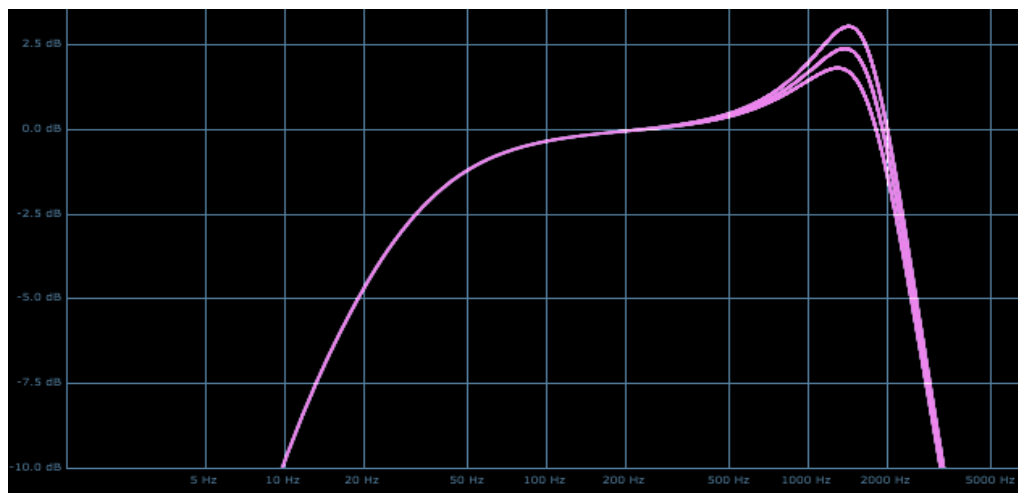
Stinger HP, one cut-off selected, showing range of width from 0 to 100%.

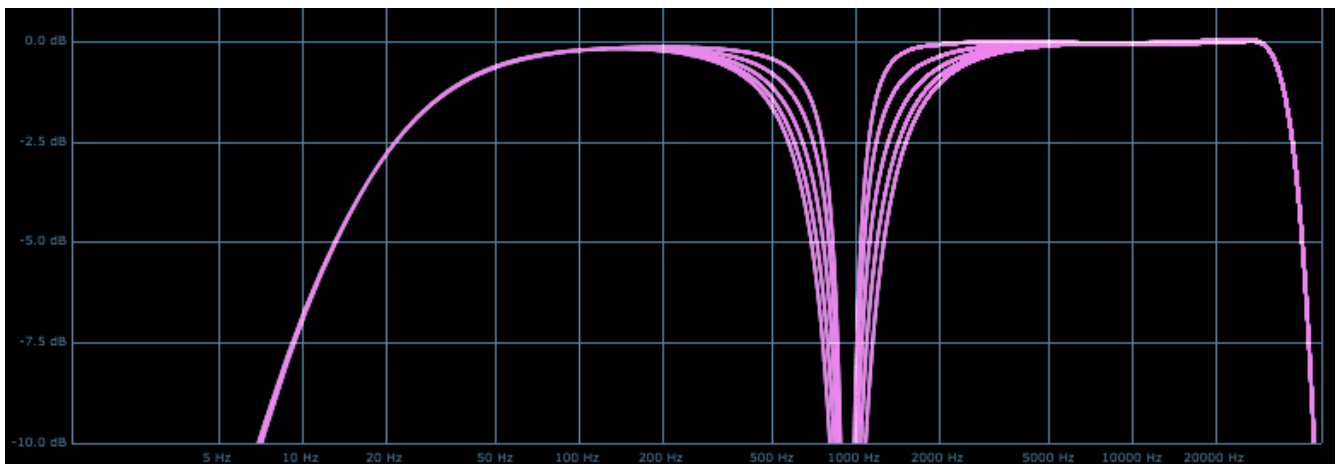Stinger LP, all cut-off points with width at 100%.

Stinger LP, one cut-off point, width from 0 to 100%.

Stinger Notch filter, all selectable center freqs with width at 100%. This graph isn't very useful because there's so much overlap due to this program having the most selectable positions, but here it is anyway.
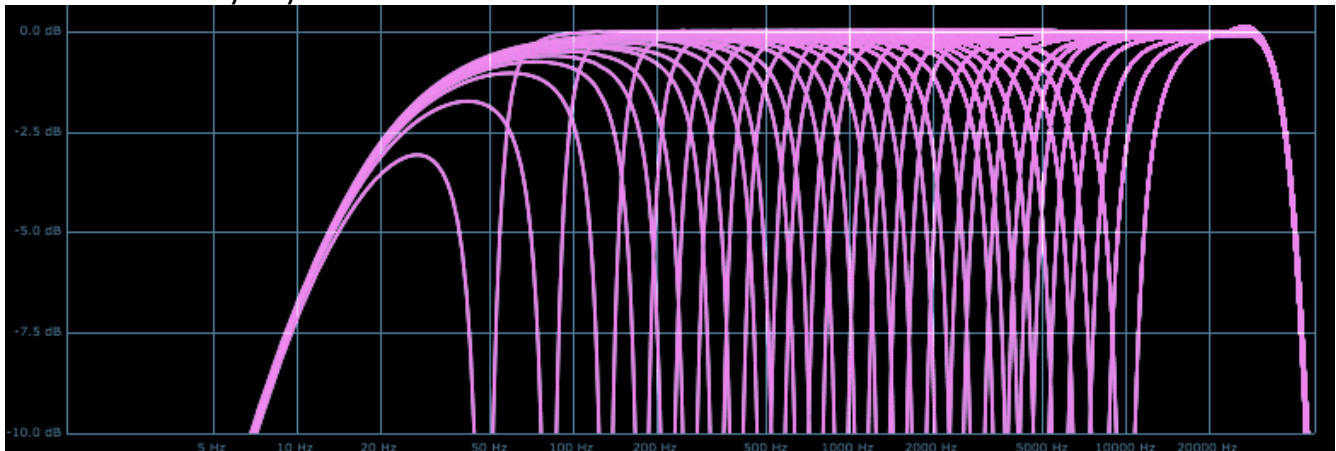
Stinger notch, one position, showing width from 0 to 100%.

V1 – use this version number to keep track of updates. If the manual posted at my site has a higher version number than the one you have, your set probably isn't up to date.

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Max made the skin for this release, and he has a patreon, so if you'd like to contribute to his ability to produce more skins for Nebula, check it out!
https://www.patreon.com/join/azzimov