CupReels AX 102

Cupwise Nebula library

General Info

Three reel to reel tape decks of the same model (typically used for mixdowns/masters) were sampled for use in Nebula:

- Ax 102 (deck #1) – 2 track ½" with ARIA Electronics, Flux Magnetics standard response heads, running ATR Magnetics tape, at 15IPS, 30IPS.
- Ax 102 (#2) – 2 track ¼" running SM911 tape, sampled at 15IPS.
- Ax 102 (#3) – 2 track ½" running SM900 tape, sampled at 30IPS.
- All three decks were sampled with no tape (electronics only pass through).
- There's a special 'dynamics only' (tape compression) program that handles the tape compression effect.

There are also 'EQ flattened' programs I made for each of the tape samplings, using a linear phase equalizer to provide a flatter frequency response. They have the same harmonic content. You may find them more suitable where you'd like more transparency (for example, mastering).

T**here are 6 bonus reverb programs** which I made by 'resampling' a selection of reverbs from my other libraries, onto and off of these tape machines at 15IPS. These reverbs include 2 from my plate releases and 4 from my various spring reverb releases.

Altogether there are 18 programs, in 44.1, 48, 88.2, and 96khz.

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 main programs are in the 'TPE' category, then the 'CR4', 'CR5', 'CR8', or 'CR9' categories, for each sample rate. 'CR5' is for the 48khz rate. The reverb programs are in 'REV', then 'RR4', 'RR5', 'RR8', and 'RR9'.

2) To install the skins, consult 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!

User Interface/Controls
Main Tape Programs:

1) Program Selection Matrix – Grouped by deck. Programs marked 'Flat' are the EQ flattened programs, use these if you want a more subtle effect. The 'Dynamics' program should actually not be loaded from here, it has its own UI/skin. If you load it here, the input meter won't be accurate.
2) Input – I recommend you use the trim control instead of this one.
3) Trim – This is an input control you can use to adjust how much drive you get out of the tape. Whatever amount of boost or cut you apply here is compensated for on the output, so the overall level should stay the same, which allows you to more easily hear the change from the drive level.
4) Output – Just a simple output gain control.
5) Harmonics Level – Simple mixer control that directly adjusts the level of the harmonics generated by the programs. Not available in the 'Dynamics' program since it has no harmonics.
6) Release – Adjusts the release behavior of the programs. The default setting gives good results so you can just leave it alone, but if you'd like to you can try increasing it for more saturation. The effect of doing that is more obvious with higher input drive amounts.
7) Input Meter – A VU input meter.
8) Output Meter – A VU output meter.
9) Overload and Peak Hold Input Indicators – The overload meter lights up if your signal going into or out of Nebula is too hot. 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.

Dynamics Only/Tape Compression UI:

1) Input Gain
2) Trim – Does the same thing as with the main tape tone programs, but here you use it to determine how much tape compression you'll get. If you want completely authentic results, you should have a main tape tone instance before the dynamics instance, and both of them should have the same trim/input settings. Don't be afraid to experiment, because the tape compression program can actually be driven a lot hotter than the main tone programs. This is because I extended the tape compression to go beyond what was actually sampled, allowing you to get up to around 25dB of gain reduction.
3) Output Gain – Unfortunately I can't put a better makeup gain control in this program, so you'll have to use this, but it only allows up to 6dB of makeup gain. If that's not enough you'll have to use some other plug-in or your DAW to makeup the gain.
4) Release – Does the same thing as with the main tape programs, but here the effect is more obvious as it directly affects the gain reduction. The default setting gives you a nice tape limiting effect, so you can just leave it alone unless you want something different. Think of it as release control on a limiter.
5) Input VU Meter
6) Output VU Meter, Overload Indicator
7) Gain Reduction Meter – Tells you how many dB of gain reduction you have.

Taped Reverbs UI:

1) Dry – Allows you to introduce some dry signal, or even bring it all the way back in. By default it's set so there is no dry signal, because I recommend using these reverbs in a send track in your DAW.
2) Reverb Level – Adjusts the level of the reverb. The reverbs and the tape they were resampled with both react dynamically, and you can use this control to drive the program and get slightly different tonal results. This control doesn't compensate on the output like the trim knob in the other programs though, so you'll need to do that with another plug-in or your DAW, which is why I recommend using these reverbs as sends. The output control won't work for compensation because it will alter the tone just like the reverb level control does. **To summarize- use this control to set the tone you want, and use something after the Nebula instance to set the level you need.**
3) Input Gain – Really you can just ignore this control and use the reverb level instead.
4) Output Gain – Again, you can just ignore this unless you need more gain.
5) Program Selection Matrix – Use these buttons to pick which reverb you want.
6) Output VU meter, Left
7) Output VU meter, Right – There's no input meter here because the output level is what 'drives' these programs (the others are driven by their input, as usual). I do all of my reverbs this way, for my own reasons. So the input level isn't very important, which is why there's no input meter.
8) Peak Hold Indicator – Same as in the others. Just make sure it doesn't go over 0.

More Info

The main tape programs all load with the trim control set to provide a -10dB input padding by default. I did this to prevent any nasty distortions from happening if you load a program with a very hot input (close to or beyond 0dBFS). This allows you to load a program, and boost the trim control upwards, slowly and carefully, while watching the input VU meter, and the peak hold indicator. You really don't want the signal to ever pass 0dBFS on the peak hold meter, and even if you just get to close to 0dBFS with some signals you could get a nasty result, so just back off on the trim a bit if you do.

Decks #2 and 3 weren't driven to compression during sampling, so using either of those programs alone gives you the full sampled effect. You can still pair the tape compression 'module' with them, if you choose to.

Deck #1 was driven hotter, into saturation. I removed the tape compression effect from the main tone programs sampled from this deck, and created a 'dynamics only' program for the tape compression. I did this to overcome limitations with Nebula. This way gives better results than having it all in one program. This means that for the deck #1 programs, you may need to load two instances of Nebula to get the full effect (depending on drive levels)- one for the main tape program (tone/harmonics), then another for the 'dynamics only' program (tape compression). Here are some notes about this:

- The main deck #1 programs still have dynamics in the harmonic response, it has only been stripped out of the fundamental. So the harmonics still respond dynamically, as usual. This means higher inputs produce more harmonics.

- The 'dynamics only' program is transparent and provides no tape tone or harmonics by itself. It only reproduces the tape compression itself.

- To maintain authenticity to what was sampled, make sure to have the same setting on the 'trim' control, in both the tone and dyn only instances.

- You don't have to use the tape compression if you don't want to. It uses more CPU so not loading it is always an option. You also don't have to maintain authenticity, and can use any settings you like in either instance. You could try using the dynamics only program in combination with the decks 2 and 3 programs, which didn't actually compress during sampling, or using the tape compression by itself. I've had a lot of people say they really like using it that way.

- The dynamics only/compression program does have a handy gain reduction meter. If you have an instance open and it never shows any GR, you should probably just remove the instance. You have to drive the program pretty hot to compress (it's really more like limiting), so if you aren't doing that, there's no reason to have it running and using CPU.
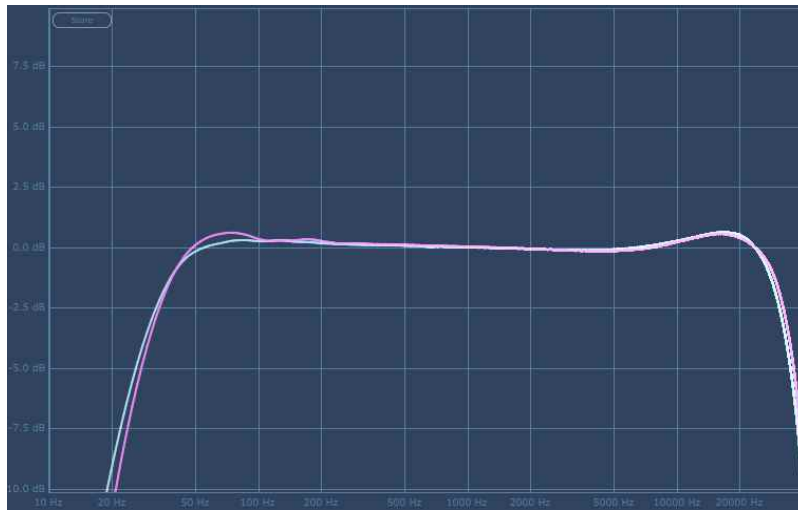
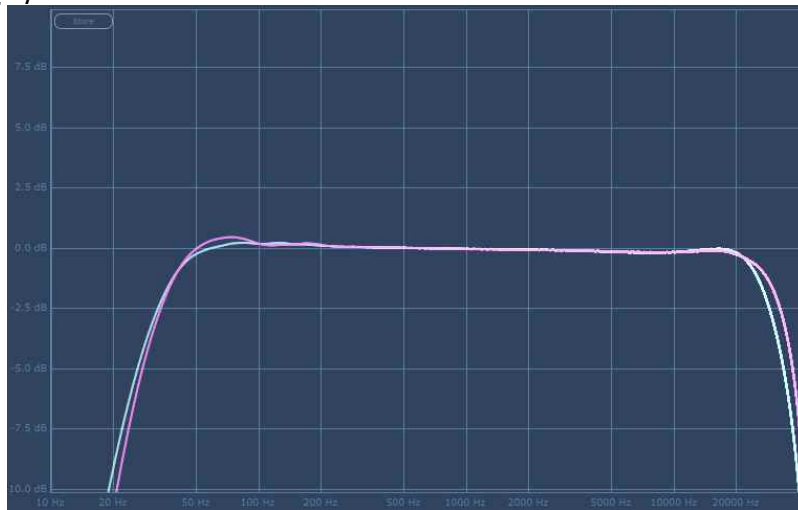## Graphs (made with the 96khz programs)
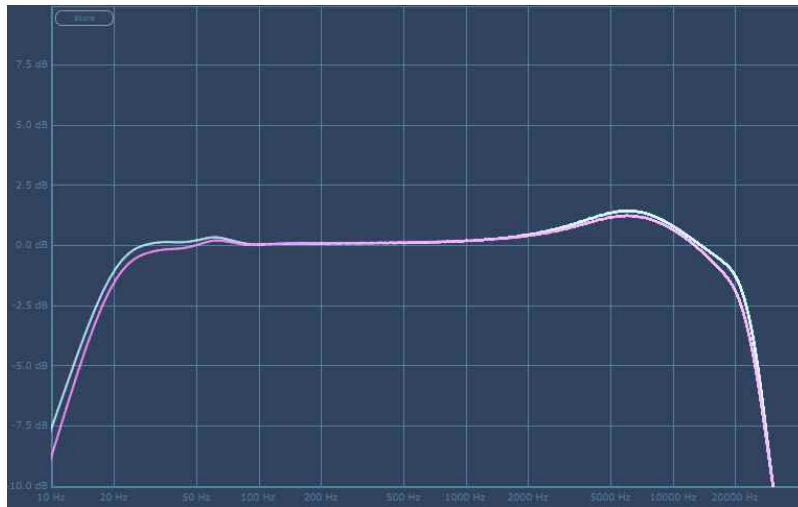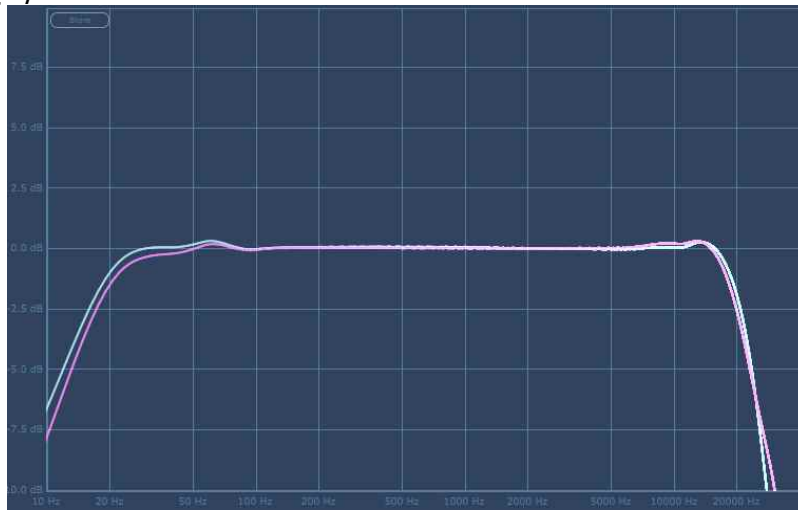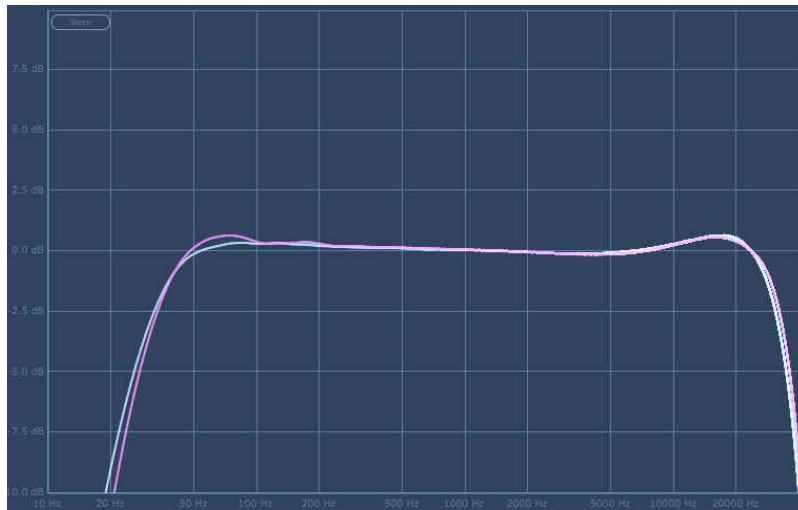
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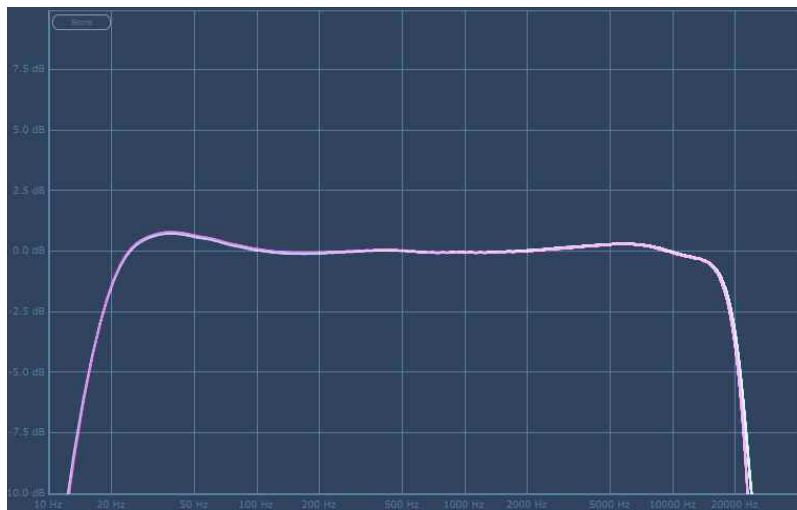
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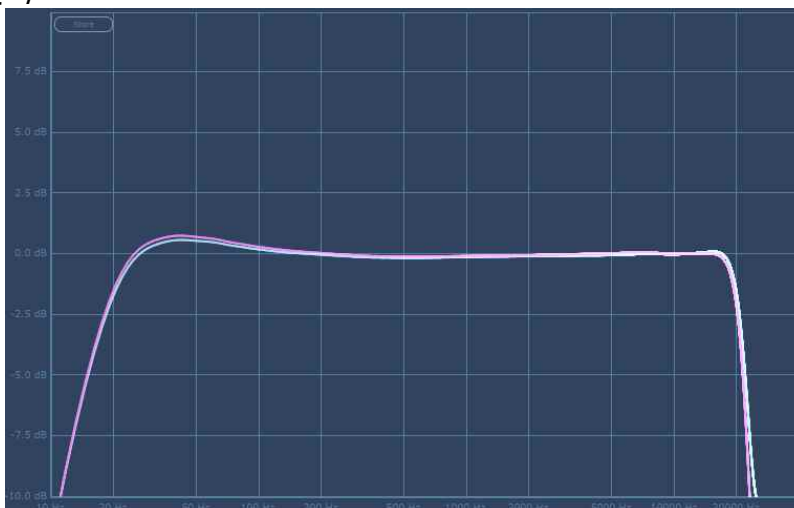
Deck 1, 30 IPS:

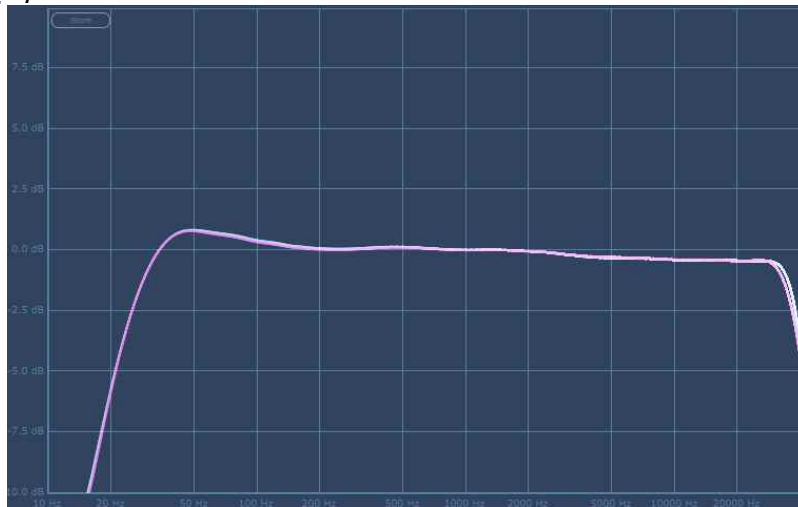Deck 1, 30 IPS EQ'd/Flattened:

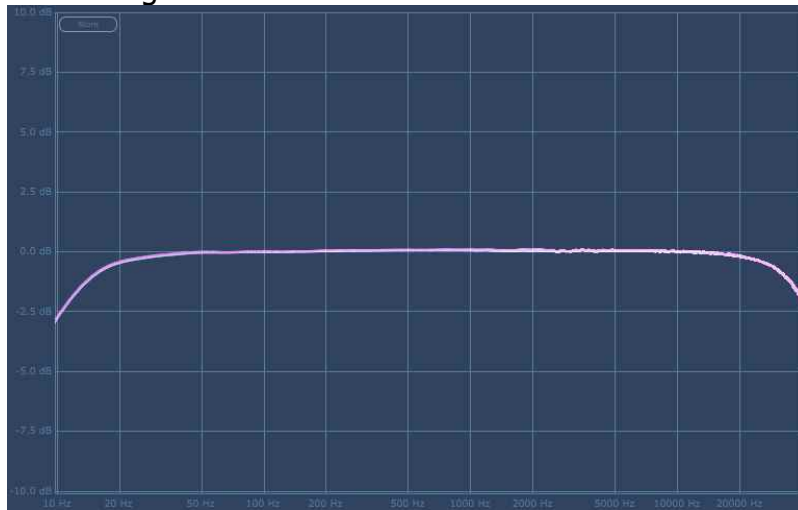Deck 2, 15 IPS:

Deck 2, 15 IPS EQ'd/Flattened:
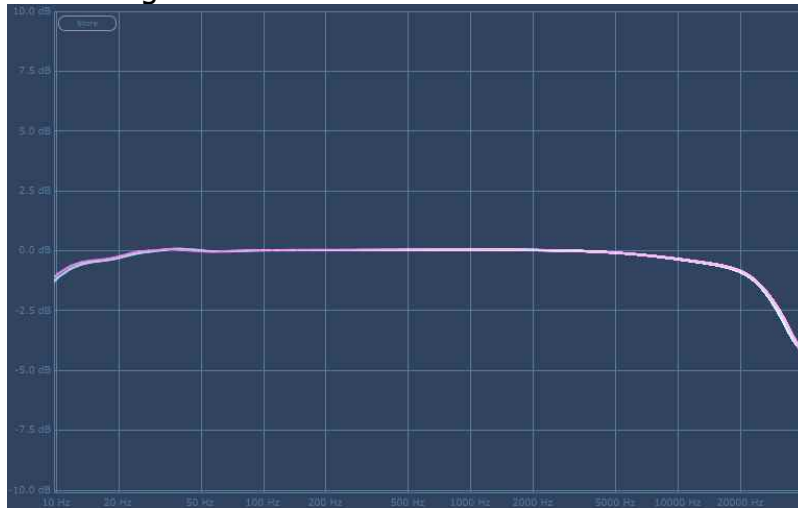

Deck 3, 30 IPS:

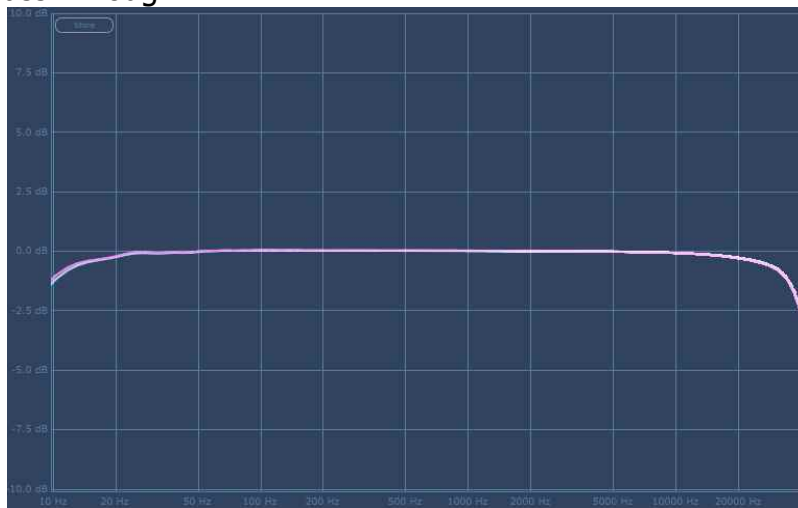

Deck 3, 30 IPS EQ'd/Flattened:

Deck 1, No Tape/Pass-Through:

Deck 2, No Tape/Pass-Through:

Deck 3, No Tape/Pass-Through:

V1.1 – 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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www.cupwise.com

Max made the skins 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

I also have to thank Matt for getting me the samples for deck #1 (pictured to right isn't it, that's deck #2)! Check out his mastering studio here:

MATTHEW GRAY MASTERING