Graded Unit 2

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Project overview & Chosen Job Role

- My chosen job role for this project was based around Mixing and Mastering.

- I chose this particular role because I have previous experience with producing and mixing my own music, and this is also a job I could see myself applying for in the future.

Job role Skills:

- Communication Skills, when working with artists and other engineers
- An understanding of DAWs and how effects work/operate.
- An understanding of how music in general translates from studio to other sound systems(mono systems and speakers with different freq responses)
- Knowledge of how frequencies and loudness is perceived

Mixing Skills

- An understanding of specific plugins and their uses, eq,compression, reverb, delay etc.
- Knowledge of how to make space for each element in the mix using effects
- Understanding of distortion,saturation and clippers for coloring mixes and increasing loudness.

Mastering Skills

- An understanding of sample rates, bit rate and uses for oversampling.
- An understanding of how different file types operate (WAV/mp3), use cases for each and how to minimize artifacts when rendering to a compressed format.
- An understanding of perceived loudness and loudness metering.
- An understanding of typical mastering plugins like, limiters, exciters and mastering compressors.

My Strengths:

- I have roughly 10 years of experience using Fl studio and Ableton as a main DAW and by extension their native plugins.
- Over the years I have trained my ear to hear muddy,harsh and clashing frequencies and have taught myself how to fix the issues with eq/compression and sidechain.
- I have worked on many different sound systems and usually have a good idea of how my music will translate on other systems.

Project Aims:

- Find and work with artists to create 3 mixed and mastered tracks
- Create one master inside pro tools
- Create mix/master template based on the track mastered inside pro tools
- Experiment with stems ran through hardware effects
- Take feedback from another producer and implement changes
- Analyze loudness of the final tracks created, and use that information to determine the correct level for the track in relation to where the track would be distributed to and played back.

Main Aim:

I have decided to create 3 track masters as artifact outcomes for this project, with a focus on these elements of their creation:

- Mixing,
- bus-mixing,
- mastering.

Gathering Material

To gather tracks I contacted artists through twitter to use one of their tracks or their material

Ghosthack - used a vocal from their collection and produced a track around it for future mix/master.

Navjaxx - acquired full already-produced slap-house track for mix/master.

Elation - acquired a future bass remix project of ‘Avicii - waiting for love”.

Processes and applied knowledge

Each stage used:

- General effects and sound production knowledge.

- Stage specific knowledge and processes

General processes

Some basic knowledge is required before applying that to more specific and advanced parts of mixing and mastering:

- Volume mixing
- Basic eq
- Basic compression
- Distortion/saturation
- reverb/delay

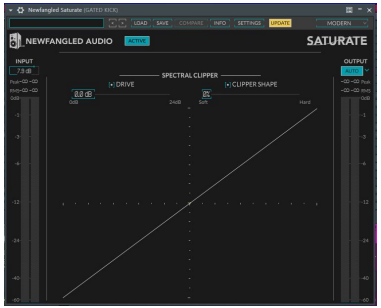
All tracks mixed in the project were also given a basic mix using this knowledge before moving on to the bus-mix or master.

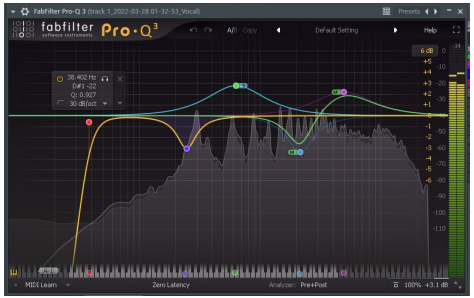
Overview of typical basic mix:

Mixdown Processes:

- Multiband compression
- Clipping
- Stereo Techniques
- Parallel Compression
- Dynamic and mid/side eq

Mixdown Processes:





Mastering Process

- Whole-mix compression
- Dynamic and mid/side eq
- Multi-band compression
- Harmonic Exciter(distortion)
- Stereo Imager
- Limiter

Mastering Process:

Mastering demo:
(Track1)

Mastering demo:
(Track2)

How Loudness Metering Works:

RMS(Root, Mean, Square)

Rms takes peak value samples over a given period of time and squares each individual sample to account for negative values,

They are then summed together and divided by number of samples given to get an average, then,

The square root of that average is found final RMS value.

How Loudness Metering Works:

LUFS:

The audio meter initially has a gate applied, to avoid people misusing the meter by making incredibly quiet or silent parts of their track along with max volume parts to create an inaccurate reading from the meter.

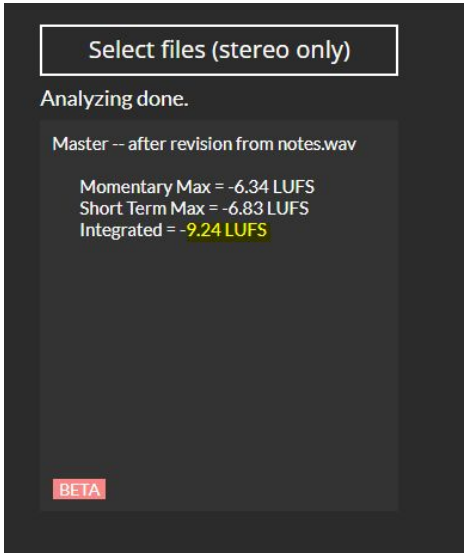
The audio is then put through a ‘k-weighting filter’ which essentially is an eq that high-shelfs at roughly 1k and above by +4db, and a low cut filter at around 100hz and below before being analyzed by the meter

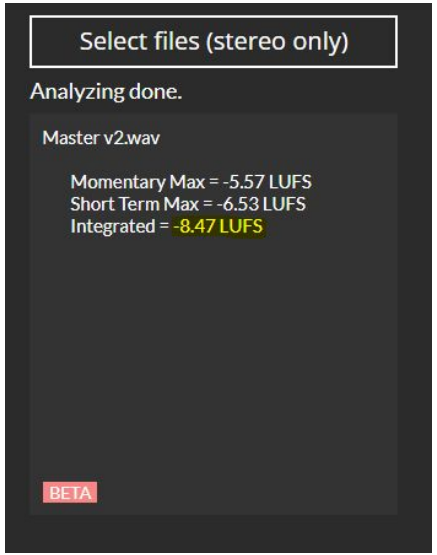
- Momentary lufs = lufs over 400ms period

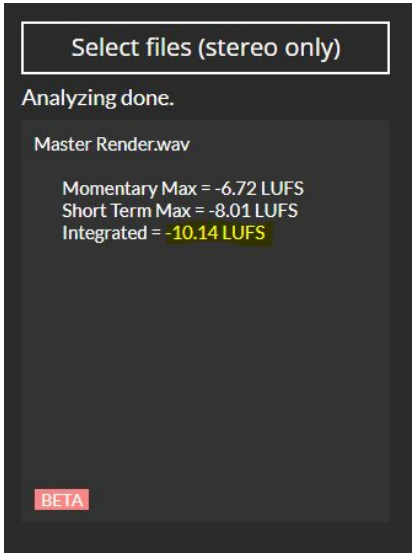
- Short Term lufs = lufs over 3 second period

- Integrated lufs = lufs of full track

Loudness Values of my Tracks:







Loudness Penalty and Justification:

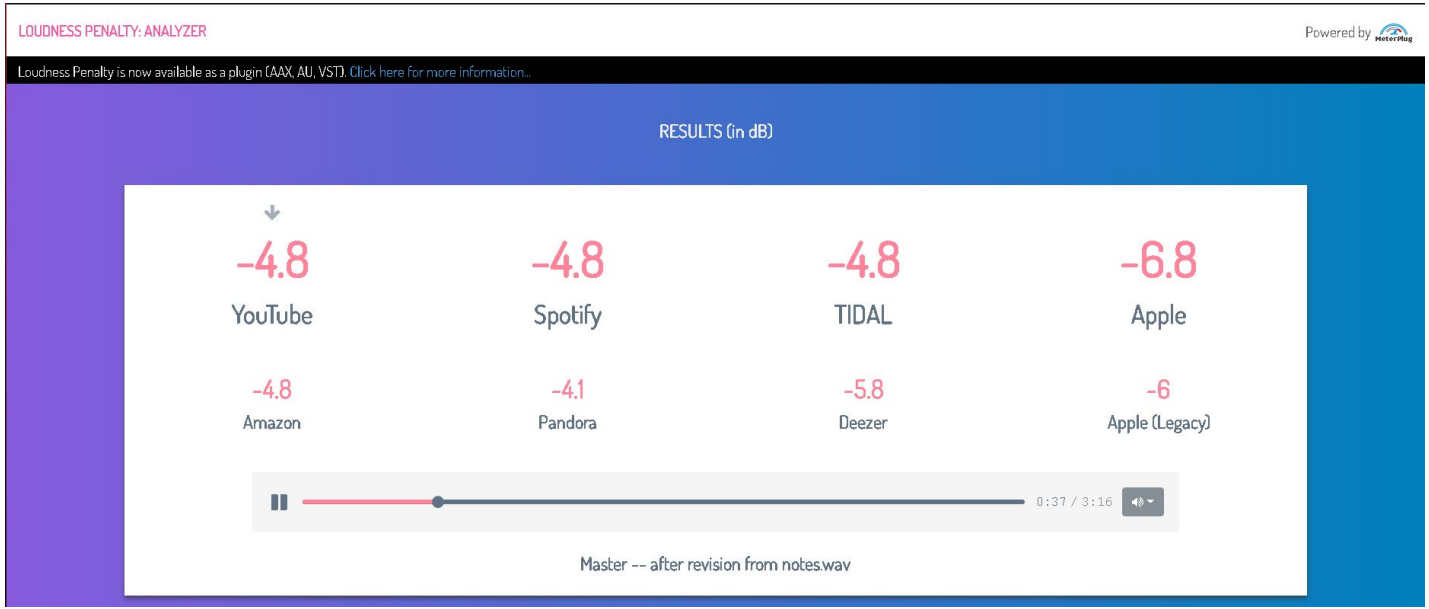
- Typical loudness standard is roughly -14 lufs across most streaming platforms.
- Any tracks uploaded with a higher lufs reading is turned down by the db amount needed to reach -14lufs
- Tracks that are quieter than the platforms loudness targets is affected differently depending on the platform.
- Spotify will turn quieter music up, meaning if your tracks is peaking at -1 and spotify needs to turn it up by 3db, spotify will apply a limiter to reduce the peaks.
- Youtube on the other hand does nothing at all to quieter tracks.

Loudness Penalty and Justification:

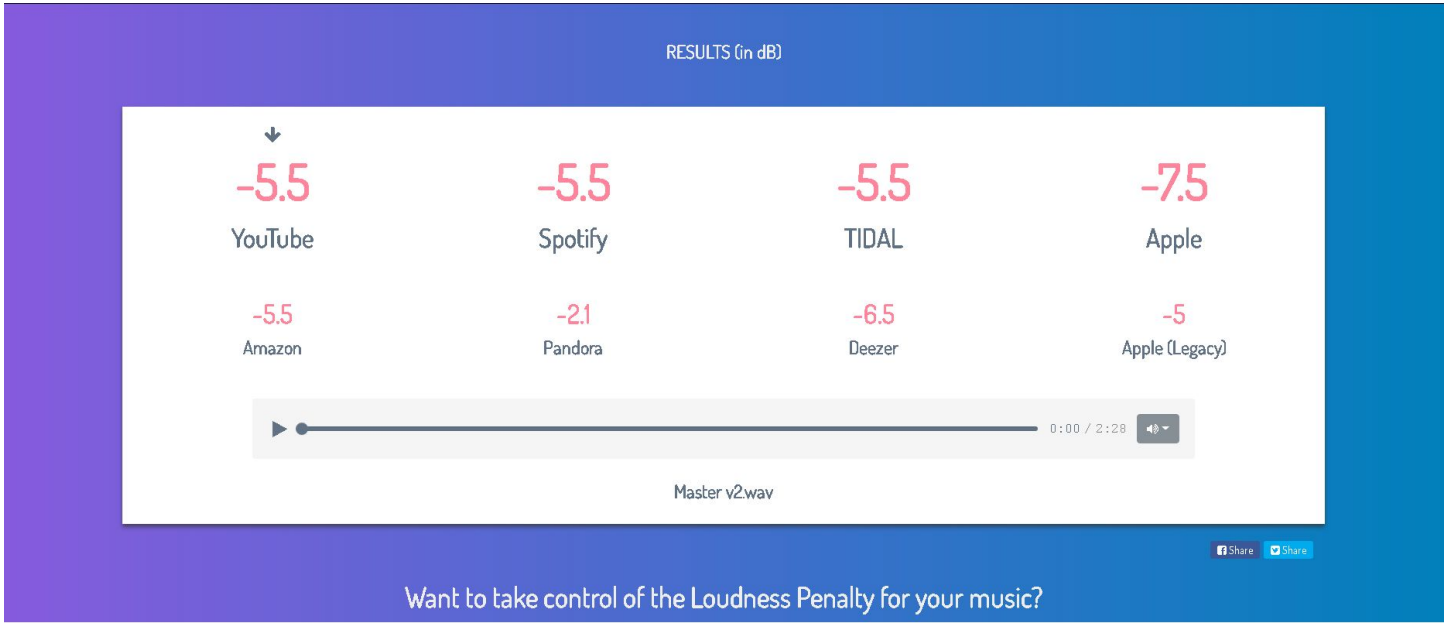
- For spotify in particular, they have an option for subscribers to turn on a loud setting which changes the normalisation algorithm to -11lufs, this also means if you master to below -11lufs you run the risk of a small portion of users playing back a track that’s being gained and limited by spotify.

- *The next slides show the typical loudness penalty for my tracks for various platform.*

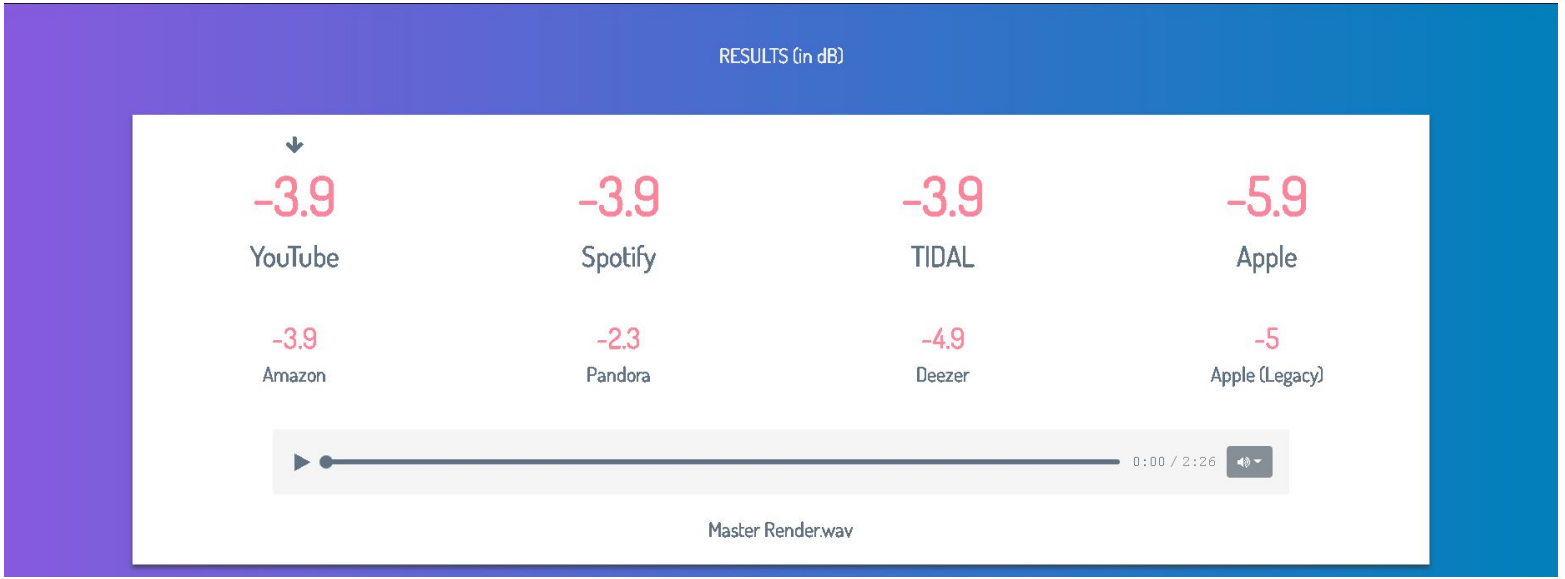
Track 1


LOUDNESS PENALTY: ANALYZER
Powered by MeterPlug
Loudness Penalty is now available as a plugin (AAX, AU, VST). Click here for more information...
RESULTS (in dB)
-4.8
YouTube
-4.8
Spotify
-4.8
TIDAL
-6.8
Apple
-4.8
Amazon
-4.1
Pandora
-5.8
Deezer
-6
Apple (Legacy)
0:37 / 3:16
Master -- after revision from notes.wav

Track 2


RESULTS (in dB)
-5.5
YouTube
-5.5
Spotify
-5.5
TIDAL
-7.5
Apple
-5.5
Amazon
-2.1
Pandora
-6.5
Deezer
-5
Apple (Legacy)
0:00 / 2:28
Master v2.wav
Share
Share
Want to take control of the Loudness Penalty for your music?

Track 3


RESULTS (in dB)
-3.9
YouTube
-3.9
Spotify
-3.9
TIDAL
-5.9
Apple
-3.9
Amazon
-2.3
Pandora
-4.9
Deezer
-5
Apple (Legacy)
0:00 / 2:26
Master Render.wav

EDM Tracks' Typical Loudness

- Electronic tracks are typically very loud,
- even putting aside genre specific 'loud' sounds that make the genre what it is,
- EDM tracks are typically made to be played out live, and having all tracks being very loud helps keep the energy when transitioning from song to song consistent.
- The alternative to mastering very loud (for EDM music) is making platform specific Masters, but this would come with the problem of potentially altering how the song sounds on each platform just to meet their standards which for each platform can vary.

Reference Tracks

- As a reference to how professionals are uploading music to youtube specifically,
- I downloaded the raw music files from youtube (meaning this is what was uploaded to youtube)
- And ran these files through the same loudness analyzer.

Reference Tracks' LUFS

Ghost Stories - Inside My Head-320k.mp3

Momentary Max = -2.32 LUFS
Short Term Max = -2.68 LUFS
Integrated = -4.90 LUFS

Headhunterz - Home (Official Videoclip)-320k.mp3

Momentary Max = -2.41 LUFS
Short Term Max = -3.61 LUFS
Integrated = -7.17 LUFS

Sub Zero Project - Fly With Me (Official Video)-320k.mp3

Momentary Max = -5.09 LUFS
Short Term Max = -5.46 LUFS
Integrated = -8.87 LUFS

VINAI - Rise Up (feat. Vamero) [Official Lyric Video]-320k.mp3

Momentary Max = -4.45 LUFS
Short Term Max = -5.26 LUFS
Integrated = -7.08 LUFS

Avicii - Waiting For Love (Carnage & Headhunterz Remix)-320k.mp3

Momentary Max = -2.30 LUFS
Short Term Max = -2.79 LUFS
Integrated = -5.87 LUFS

Avicii - Waiting For Love-320k.mp3

Momentary Max = -4.71 LUFS
Short Term Max = -5.45 LUFS
Integrated = -7.03 LUFS

ILLENIUM, Excision, I Prevail - Feel Something (Lyric Video)-320k.mp3

Momentary Max = -2.91 LUFS
Short Term Max = -4.06 LUFS
Integrated = -7.04 LUFS

How I learn new skills and keep up to date:

- Main ways I get information is through youtube search, specific youtube channels and google.

https://www.youtube.com/c/DanWorrall

https://www.youtube.com/user/fabfilter

https://www.youtube.com/user/mixbustv

https://www.youtube.com/c/Whiteseastudio

https://www.youtube.com/c/Baphometrix