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# MASTERING - TECHNICAL GUIDE

English Version

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# HOW TO PREPARE YOUR VISIT TO GLOBE AUDIO MASTERING?

THE PURPOSE OF THIS BRIEF PRESENTATION IS TO ANSWER THE QUESTIONS I AM REGULARLY ASKED ABOUT MASTERING, AND TO DIVE INTO A RELATIVELY COMPLEX TECHNICAL FIELD.

**What guidelines, and what precautions one must take to get the best out of mastering?**

Mastering is the last step in audio processing, it is the «polish,» the ultimate finish, and if it isn't everything, a «good» mastering can greatly improve the end result. It is high-precision work that allows you to finalise the music as well as possible. After the mastering process, the tracks no longer belong to the creative space and can't be furthermore altered, which is why it is such a crucial step.



# HOW TO PREPARE YOUR VISIT TO GLOBE AUDIO MASTERING?

This requires first of all an irreproachable acoustic environment, a reliable listening of the whole audio spectrum, from the extreme low to the extreme high (especially no flattering and therefore misleading listening), a thorough technical design (wiring, connections, power supply, clocking) and both analogue (in Class A and Tubes) and digital machines, of the highest level and often customised according to our needs.

We add to that a «minimal» listening system (multimedia type) in order to hear what the listener will perceive under limited conditions - often the listening system of the greatest number ...!

Even more important than any piece of gear employed, it is above all the mastering engineer, his experience, and his musical culture that can make a real difference. All the mastering studios in the world use more or less the same machines, never with the same result ...

## SO THERE IS NO RECIPE OR MIRACLE DEVICE!





Mastering is an artistic step, there is no hard and fast rule : everything can be experienced and discussed.



# HOW TO PREPARE YOUR VISIT TO GLOBE AUDIO MASTERING?

But please beware ! - and this is the purpose of this little presentation

- The most essential part of this process happens way before entering the mastering studio : the quality of the music and the overall sound will depend, from the very beginning, on the quality of the recorded takes, which will then determine the quality of the mixes, which will then determine, in-fine, the quality of the mastering. The better the mix, the better the mastering will be, and it will also be done faster. In short, a good mastering... starts with a good mix !

**There really needs to be consistency between the different levels of the chain.**

These tips remain guidelines based on my own experience ... and on the thousands of Records, Ep or Vinyl that I have mastered at Globe Audio since 1999 !





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# AUDIO FORMATS & SUPPORTS:

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# A) AUDIO FORMATS & SUPPORTS:

- > Hard Disk (USB Key / Hard Disk) in WAVE (ideally in BWF) or AIFF - all formats (up to 32 bits / 192 kHz) - In stereo tracks (interlaced) or not, according to preference
- > Always bring a security backup on another HD
- > Analog Tape ¼ INCH (7,5 - 15 & 30 IPS) and ½ INCH (15 & 30 IPS)
- > DAT 16 and 24 bits / 44.1 and 48 kHz
- > Sent by WeTransfer / SwissTransfer / DropBox or by server during remote sessions

Even if the medium was recorded and mixed in 44.1kHz / 16 bits, it is necessary to start from DATA files (on HD) and not from an Audio CD because the physical burning always brings a certain error rate even in standard RED BOOK.

To save time during the editing, it is useful to organise the files according to their order in the album (starting from O1) :

O1 - The Mountain  
O2 - The Bike  
O3 - Let's Go Fishing  
...  
10 - Mushrooms  
11 - K2  
Etc.

It's important to bring the audio format used for mixing to the mastering session, in order to avoid conversions. This is why I ask to bring the Mixes in their original resolution (ex: in 24/48).

**For example, when we go from 44.1 files to 48, or from 16 to 24 bits, we only add background noise to the initial wave in order to fill in the missing samples ...**



# A) THE SUPPORT

## DESTINATION FORMATS (NOT NECESSARILY THE WORKING FORMAT):

- > 44.1kHz is the format for music on CD media
- > 48 kHz is the format for image processing (DVD, Film)
- > 96 kHz is the format for multichannel DVD
- > 192 kHz is the format for DVD audio in stereo
- > The SACD works in 1 bit at 2.8224 MHz, this is the DSD format

It can be interesting to record and mix in 24/96 if the whole audio chain is of professional level : microphones, preamps, converters, effects, therefore an investment of tens of thousands euros.

However, it seems a bit excessive to work in very high resolution if using converters of average quality... Making an album in 24/96 with a poor sound card is therefore a little inappropriate !

Especially if the mix is done with plugins which often cannot work correctly in high resolution ... In this case 24 / 44.1 or 24/48 is more judicious.

It should not be forgotten that the “good old” PCM format of the CD (16 bits / 44.1kHz) allows for a theoretical dynamic range (difference between the strong and weak levels) of 96 dB (6dB per bit), but unfortunately very often one will find out that “High Resolution” mixes end up having less than 10 dB of dynamic range !

# A) THE SUPPORT

## DESTINATION FORMATS

Obviously if the music has large dynamic variations (often the case of acoustic music) it is good practice to record in 24 / 88.2 - for example - in order to improve the signal to noise ratio and to have more margin, especially since mastering is often done with analog machines having a bandwidth and a dynamic which make it possible to restore these differences without problems (analog still has a bright future ahead, not to mention of the “colour” that this type of treatment brings).

Once the mix is converted to analog (using world class converters) we apply the appropriate treatments (equalisation, compression, multi-band processing ...) Then, we use another converter to enter the digital channel and re-record in High Resolution in our Pyramix system (certainly the best digital playback and recording system today).

This is what allows you to make the most of the resolution of your mixes.

With the dematerialization of media, more and more websites are using high resolution files (HR / HQ / Studio Quality / Studio Masters) and we are therefore now mastering the files at their original frequency, and hence deliver these files in the highest and best resolution possible. Then we apply a dithering (Type Pow-r) at the output to change the resolution from 24 to 16 bits for example for a CD medium.

# A) THE SUPPORT

## DESTINATION FORMATS

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It is therefore always interesting to record and mix in high resolution (at least in 24 / 44.1 see 24 / 88.2 or 24/96, if the configuration allows it) in order to have mastered files in HR for the future.

24/96 is Apple's recommended format for MFIT standard files. (Apple Masters)

24 / 88.2 (which is more and more used) allows to offer HR files, while simplifying the downsampling calculation by dividing the sampling frequency by 2 to obtain a 44.1 format (CD & Streaming).

For me, this is ideal «music» format, if the audio and technological equipments used allow for it.





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# LEVELS

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 **GLOBE AUDIO**  
MASTERING

# B) LEVELS

- > For digital, everything depends on the style of music of course, but on average -20 dBfs in RMS and peaks at -3dBfs Maxi, as recommended by AES in order to avoid harmonic distortions and saturations (to be checked by putting your stereo mix stereo in mono / out of phase)
- > For analog, average level at 0 dBVu for a calibration at +4 dBm
- > Leave room for mastering, because the most important thing is to have dynamics (difference between high and low levels)

## This is the most common problem!

There is often a basic misunderstanding between level and dynamics. What makes an Album «sound» loud is its dynamic range, not its absolute level, as all Albums are limited by 0dBfs, and therefore all CDs have 0dBfs peaks.

Of course, with a digital limiter at the output, you can “throw in” a lot of level : at that moment the peak signal is limited to 0dBfs, but the average signal (in RMS) also increases and approaches 0dBfs.

With adequate equipment, and for certain styles of music (Hip Hop, Metal, Electro, Techno ...), it can be an artistic choice, but it's much better to wait for the mastering stage to «push» the signal this way during this last stage of audio processing. We have suitable tools (consoles, cabling, converters, limiters) to do this while preserving the dynamics (punch) of your master, or even often by recreating this famous dynamic (thanks to M / S, filtering, expansion and some secrets too...).

# B) LEVELS

Doing it directly on the mix with plugins is perhaps not the best choice : destroyed dynamics, pumping, digital saturations, acid sounds, aggressive treble. In short, audio hell... Especially, after such a work of audio destruction, no need to call a mastering studio : we will not be able to intervene on your mix altogether. How can we apply corrections with multi-band compressors or de-essers, if the signal is constantly “choked” ?

An easy to understand example is this : start with one of your mixes, run it through an L2 type limiter, and reach for a gain of 10 or 15 dB. Well... BRAVO ! You certainly have just done one of the loudest mastering possible on your own... But maybe not the best sound imaginable !

One should not lose sight of the fact that a full mix done on a good analog console (Ex : NEVE, SSL, API, TRIDENT, STUDER, HARRYSON...), with the Vumeters well in the red, brings the average signal (RMS) towards the - 14 dBfs ...

**OdBvu (at +4 dBm) = - 20 dBfs = 1.228 Volts**

To calibrate your gear, it is necessary to generate a sinusoidal signal of 1000hz at -20 dbfs, the electrical output level must then be 1.228 Volts.

It is unfortunate to receive mixes processed at the output by plugins, or even sometimes passed into hardware machines with mastering presets - A / D converters often sounding very «cheap»

- which blithely reach minus 10 dBfs in RMS with wildly limited peaks (goodbye beautiful resonances of cymbals, rich musical harmonics, and welcome aggressiveness).



# B) LEVELS

## Worried about the noise floor ?

Do not focus too much on it : the quality of converters has improved greatly and the hiss is rarely noticeable, especially when compared with all the discs recorded on tape, which admittedly hiss a lot, but which "sound great!" So, even at the sound recording stage, especially with instruments generating a lot of dynamics and harmonics (vocals, piano, electric guitar, brass ...) you really have to be very careful to not push the recording levels too high (do not hesitate to use a little bit of compression or limiting when recording very dynamic sounds, in order to avoid such inconvenience). Potential little distortions of the recorded takes will inevitably appear during the mastering processing, especially with the use of tube-ma-

chines, which bring out the harmonics. A good way to control this is to always perform a monitoring check in mono/out of phase.

### PARADOXE :

By wanting to have a "big sound» we end up with a very small sounding mix, with non-existent dynamics ! The sound is loud, in absolute terms, but once you lower the volume of the listening system, everything is leveled : there is no more difference in dynamics between the low energy and high energy parts, and hence the sound seems «small». It is interesting to listen to "reference" albums that we imagine to be very loud, in metal or in rap, and to visualise with meters and a peak meter: There is of course a certain average level, but not to the detriment of the dynamics, and this is what gives the impression of power ... (see

at the end of this guide a level analysis document for some reference songs). Sometimes we receive mixes that go far beyond the level of these mastered albums. Yet the feeling we have while listening is far from being the same positive experience...

To make a long story short, it is not because everything is "crushed in the red zone" that the record will sound powerful ; quite the opposite !

This "fight for the loudest level", in which there is no winner, often produces flat records with no contours, and therefore no flavour. Mastering is also used to obtain a "big sound", and unfortunately engineers are very often forced to take part in this race ...

# B) LEVELS

This level problem - often mentioned in specialised conferences and by sound professionals under the name of "LOUDNESS WAR" - results in a tendency to prefer the sound of records from the 70s and 80s to those of today - and also the vintage Vinyls pressings which fully exploit their 50 dB of dynamics whereas the CD format, despite its 96 dB potential, is often found to have less than 10 dB of dynamics !

This is a huge debate but what is certain is that it is a real shame to arrive at mastering session with completely choked mixes, because you then lose almost all possibilities of making your final sound outstanding...

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**We often advise sound engineers to give the artists, the artistic director, and the label the mixes with a little "pre-mastering" so that the Album can be listened to with some "comfort", but to bring us the raw mixes on the day of the Mastering in order to jointly determine the desired RMS level.**

**Using a "pre-mastering" reference also allows to fully realise, while listening to the music at hand in a state-of-the-art mastering room, the difference between a pre-master with Plugs and a real, fully professional analog mastering job. ^-^**



**> come to Globe Audio with 2 files: one with the Mixes and one with the Pre-Mastering**





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# STEMS

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# C) LES STEMS

Another heated debated !  
For information, working in stems consists of separating the elements of the mix into stereo sub-groups to be able to intervene on them with more leeway

(eg : drums, bass, vocals, guitars, synths...)

**My position on this topic is very clear : a mix is a mix, and a mastering ... is a mastering !**

These 2 steps are fundamentally not the same. Mastering's very powerful advantage is to offer a fresh, clear, uncluttered perspective of a final mix ; a mix is in itself inherently very different, and is not accomplished with the same tools ...

Arriving with more than 20 stems for 14 unbalanced and untreated tracks on the Mastering day is a sure way of complicating the Mastering session... and I experienced such session !!!

Budget is also part of the equation, because working with several tracks in Stems also involves spending more time in the cabin ... and very rapidly inflates budget expenses !

From an artistic point of view, how to deal with a mastering session where one can intervene on all elements? Such a situation would cause a shift of focus towards the balance of each track, rather than the necessary mastering settings : we would end up missing the point of the project being mastered.

# C) STEMS

We much prefer to listen to your mixes before the mastering session, and offer suggestions about which elements of the mixes need adjustments. We believe this method to be a much more interesting and coherent way to obtain the best end result !

This is the how most sound engineers work, and how most Albums are made !

On the other hand, if you have doubts about the placement of the voice, it is always possible, in addition to the stereo Mix, to come with 2 stereo stems (even 3 counting a background/choir vocal track), at Time Code :

- 1) INSTRU
- 2) LEAD VOICE

Of course, the voice should be fully treated with effects, and the mix should have the best possible balance, in order to avoid having to spend the day "leveling" the voice ...

**In this particular scenario, working with Stems can provide a welcome security net, just in case...**



# C) STEMS

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Since our analog Mastering consoles work in M / S (Mid-Side => separation for the treatment of the center and the sides) it is anyway relatively easy to recover the signal of the voice in the center, and to raise or lower it in the Mix (thanks to a targeted dynamic equalisation)...



without the need for Stems ^-^

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# TESTS - MASTERING BUDGET:

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# D) TESTS - MASTERING BUDGET:

We often receive requests for “free Mastering tests”...

Working mainly in the analog world, it is not possible for us to answer this kind of request. Whether the piece is 30 seconds or 8 minutes, the result is the same : sometimes I need more than 2h30 on 1 track to find the appropriate colour with my arsenal... Calibrating about fifteen hardware machines takes time !

Here again, we are far from the 100% “In The Box / All computerised” work, usually done using Mastering presets prepared for each style of music, and which allow tests to be carried out in a few minutes... Obviously not with the same results !

# D) TESTS - MASTERING BUDGET:

Since 1999, What precisely makes our reputation since 1999 is the quality of our work and utmost attention to details for the final rendering. We will not privilege quantity versus quality. We do not practice chain mastering, so dear to all E-mastering platforms... It is neither my approach nor my philosophy, I love music too much to walk into this pitfall !

To be able to listen to projects close to yours, as well as get an idea of the projects I have worked on, please check out the following link :

[Releases Globe Audio Mastering - Discogs](#)

And if needed, you can also consider to Master only 1 track before committing

to a full Album collaboration. If you then decide to go for a full Album collaboration, the cost of Mastering this one track will be deducted. This way of working allows you to decide if you'd like to commit on a full Album collaboration with us, without taking any risks.

From a technical perspective, it is important to make the distinction between a Mastering Studio working fully in the digital realm, solely with plug-ins, which requires relatively basic equipment and which will allow great reactivity and ease in retouching (if the mixes change during the process for example), and a Mastering Studio working in the world of high-end analog and digital hardware tools (much more expensive and

complex to maintain), and which always make the retouching more delicate ...

While it is admitted that the colour and possibilities of analog mastering are unmatched (this is how most of the projects on the market are finalised), and this even if plug-ins allow to do interesting things as well, obviously the end cost will not be the same... Here too, it is important to keep a certain consistency and cohesiveness in relation to the investments and efforts made while tracking, mixing, and mastering ...

Audio excellence is a chain of events, a cohesive whole! It's that kind of balance and ethics for the work accomplished that will end up making a record successful.

# D) TESTS & MASTERING BUDGET

Regarding the cost of Mastering, if it is important to look at the cost for one track, it is even more important to take into consideration the discount linked to the quantity of tracks

(the more tracks you have, the more the working time will decrease ...), and the number of final supports delivered.

Per title, it can range from € 30 (for Masterings performed automatically with Algorithms or plug-ins) to € 450 (in the most prestigious studios). For an Album of 10/12 tracks: between 600 and more than 5000 € depending on the Studio chosen and the pedigree of the engineer !

**Please take your time to have a look at the pricing at Globe Audio, and you will immediately see how competitive we are !**

It is important to look at the options included (the type of MASTER provided for example, because in some cases the MASTER DDPI & CD's references will cost you an added and exorbitant amount of \$ 500 to \$ 1000, as in some US studios), and the possibility to attend the session too...



# D) TESTS & MASTERING BUDGET

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Sometimes the price is literally doubled if you attend the session... This should engender a little mistrust, because this primordial stage can be fascinating for the artist who has a chance to witness, and take part in the birth of his project, which often took months or even years to refine. It's a real pity to be excluded from this part of the process !



Whether or not you decide to attend the session in the studio, the attention and care taken for your work, and the price stay the same at Globe Audio.

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VINYL

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 **GLOBE AUDIO**  
MASTERING

# E) VINYL

In France we collaborate a lot with the famous cutting specialist:

André Perriat : 06 73 37 70 93

We also work in England with:

AGR Manufacturing

<http://www.agrm.co.uk>

And in Germany with:

Optimal Media

<https://www.optimal-media.com/en/>

We do a lot of Mastering work for VINYL, LPs, Maxi Albums, and even 45 T.

We prepare the “sides” in analog via our MASELEC console (filtering adapted to the medium, specific VINYL EQ, management of levels and dynamics, management of bass in mono via an Elleptical Filter) that we record in High Resolution - 24 Bits, and that we provide with a PDF indicating at standard Time Code all VTM Index markers (Virtual Track Marker).

We then send these elements to an “engraver”, in order to prepare the “cutting” and managing of the pressing with the Factory.



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# FINAL SUPPORTS / MEDIAS :

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 **GLOBE AUDIO**  
MASTERING

# F) FINAL SUPPORTS / MEDIAS :

## **Mp3**

(for Internet mailing, advertisement, press agent)

## **Wave 16 bits/44,1 kHz**

(Online sales platforms, Streaming)

## **HIGH RESOLUTION**

for Quobuz type platforms (more and more Streaming & online sales are done with HR files - also known as Studio Masters in 24 Bits and at resolutions in 44/48/88 see 96 kHz)

## **YouTube / Deezer**

and other streaming platforms all have different medium level & duration requirements (LUFS)

## **APPLE MASTERS**

(We are approved by APPLE as Studio Mastered For I-Tunes) for Files dedicated specifically to the Apple platform which are received in HR in 24 Bits and then encoded via Apple's AAC

## **VINYL**

(Specific mastering adapted to the constraints of the medium, in particular in frequency, in dynamics but also in relation to the setting in Mono of the low frequencies below 300 Hz)

## **MASTER DDPI**

For professional and secure CD pressing, using a Computerised Checksum tool.

# F) FINAL SUPPORTS

The DDP format (Disk Description Protocol - currently v2.0) is established as the Universal **CD** support: Initially on an Exabyte 8mm or DLT (Digital Linear Tape) tape, now on a hard disk, CD-ROM or DVD (in these cases we speak of DDPI - the files constituting it are as follows : DDPID - DDPMS - PQ\_DESCR - IMAGE.dat)

## **Major advantage**

Major advantage : this medium benefits from an MD5 checksum (Message Digest 5 is a cryptographic operation which makes it possible to obtain a file's digital fingerprint) detecting errors, as soon as they are burned, in the mastering studio.

## **The DDPI master**

(a file that can be transported by network - approximately 800 Mo for an album) is checked at the factory, which can also verify, also using a checksum, the integrity of the medium.

This is the international support used by all major labels.

It also includes the "label copy" in pdf (Mastering Studio's contact details, other information such track order, the name of each track, ISRC codes, album code, record company references...)

**Under no circumstances can a Red Book standard audio burn be considered a reliable media**, due to errors linked to physically burning the media, and the lack of means to verify its integrity ; and this even if the pressing factories accept them, but at the cost of poor quality engravings (fast speed acquisition), with sometimes unwanted clicks, other times inversion of projects...

**All projects destined to "PRESSING" are always engraved on DDPI (EP & LP)**

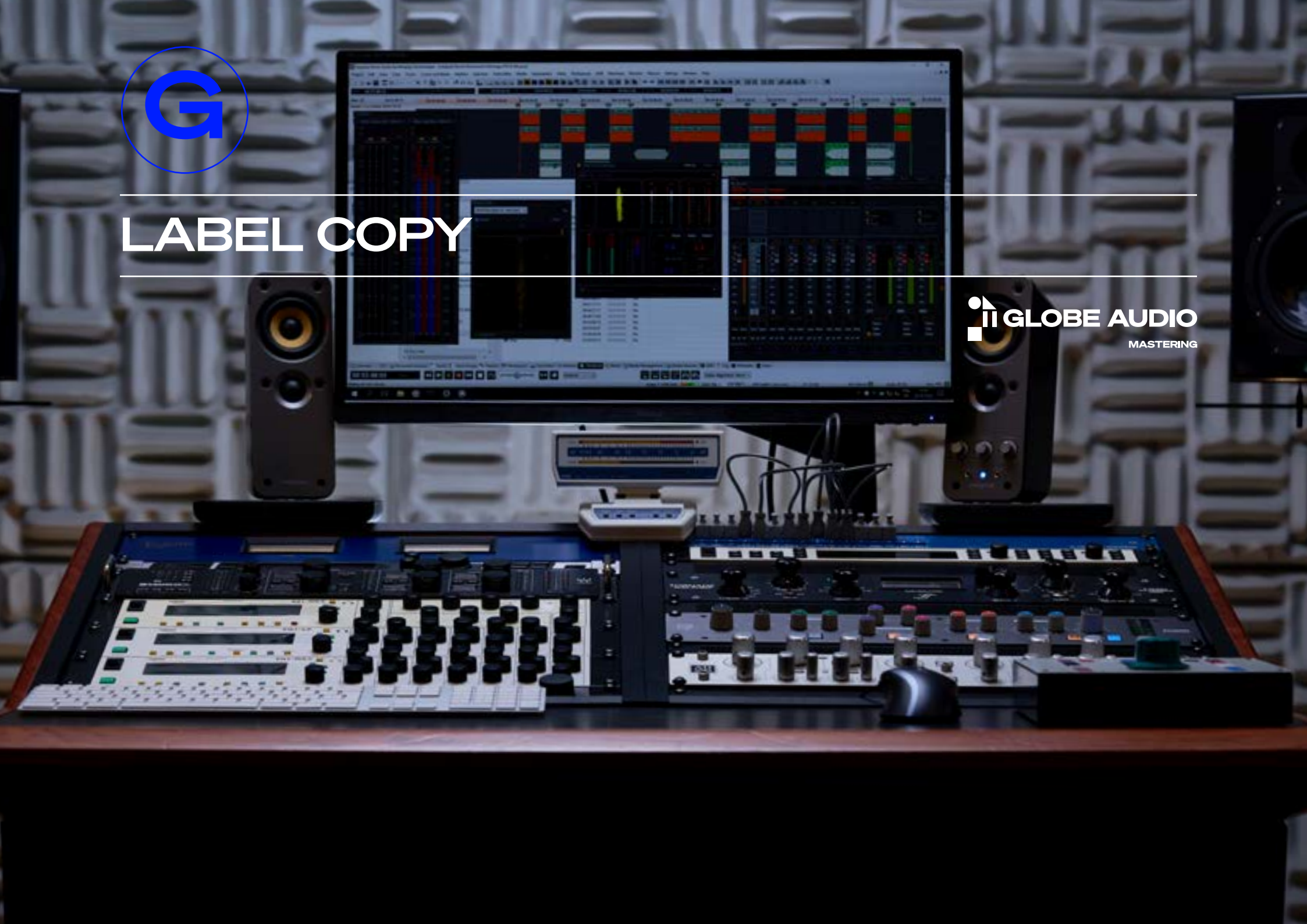


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# LABEL COPY

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 **GLOBE AUDIO**  
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# G) LE LABEL COPY

This is the document issued to us by labels or directly by bands - often with only the name of the titles and the ISRC codes :

it gathers all the information to be provided for the output of the MASTER DDPI and the different formats (to be communicated to us so that they appear on the CD Text, as well as Meta-datas with the correct case - Upper case - Lower case) :

- > ARTIST NAME (Upper Case)
- > Album name/LP or Maxi/EP
- > Name and order of tracks
- > ISRC codes
- > Album code (reference)
- > UPCEAN Code (bar code)

Please don't forget to provide us with the Label Copy for the day of the mastering session, because it is all this information that we will integrate into your different Master formats !



# G) LABEL COPY

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Since 1989, the SCPP has been the national ISRC agency responsible for promoting and administering the ISRC code in France : it is a free service.

The purpose of this code is to facilitate the management of neighbouring rights - and therefore of producers' rights - by collective rights management societies, to allow the control of reproduction, broadcasting, communication of each title to the public, make sure all users pay their dues, and distributing the remuneration received to all beneficiaries.



To get them :  
[www.scpp.fr](http://www.scpp.fr)



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# MIXING ADVICES:

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 **GLOBE AUDIO**  
MASTERING



# H) MIXING ADVICES:

## Phase

If for a vinyl recording it is important to monitor the phase, in particular to avoid bass sounds on a single channel (technical reasons when burning the groove on the matrix), for a CD and in DIGITAL we do not find this type of problem.

Without going “out of phase”, do not hesitate, when mixing, to spatialise the sounds and the effects. This is what gives stereo envelopment/surround. Above all, do not be afraid of the phase meter needle if it moves towards  $90^\circ$ . Check by listening in MONO that the spatializations don't create phase cancellations. (ex : on full right / left spatialized guitars)

In any case, from the moment when multiple microphones are used, phase cancellations are necessarily created (except AB couple with coincident capsules, and ORTF couple).

Unless this is an artistic choice (like Phil Spector's Back to Mono), it is a shame to bring **quasi-mono mixes to a mastering session, and then send the mixes to a spatialiser to create fake, pseudo-stereo ...**

# H) MIXING ADVICES

## Effects

Effects often stand out a bit during mastering ; it is therefore prudent not to over-enhance them in the mix.

## Plugins

Avoid any processing on the master (limitation, compression, equalisation).

Also watch their output level because, if all the tracks are close to 0 dBfs, the master track will apply a drastic limitation, even if there are no inserts on it.

## EQ

Once again, it is better to keep some headroom and “open” a slightly dark mix with a mastering equaliser. It's always better to create a bit of shine with a good tube EQ, rather than having to tame an already too bright and aggressive track. To make a long story short, it's better to send us a slightly “dark” mix.

## Infra-Bass

Please let the extreme low live, and refrain from cutting everything below 60Hz for example. Often the low frequencies don't translate well on an average size listening system, while a the non-treated acoustics of an average room can also be very misleading ...

**Warning : do not savagely cut and destroy the low infras !**

Better to have a little too much bass info to manage in our multi-band M / S cabins than to lack bass ...

# H) MIXING ADVICES

## Voice level

We can, in our 2 Studios, work in M / S (treat the mono signal differently from the stereo) and therefore it is easy to bring out the presence of the voice, or to tame it if necessary. If in doubt, it may be prudent to output the instrument and the lead track with its effects (both in stereo), at the same time code, in order to be able to adjust the voice at the time of mastering (generally a few tenths of a db). In no case is it a question of treating/leveling the voice during mastering : it is essential for the voice to be correctly balanced in the mix !

## Analog

It can be very interesting to pass the mixes through an analogue tape recorder, before mastering, in order to gain a little "colour" and warmth: more roundness, softer treble, natural tape by using the right entry level. This treatment brings a "vintage" colour to mixes that sound too "cold".

It is quite possible to lay down your mixes on our STU-  
DER A80 tape recorders (1/4 and 1/2 inch)

We also own, in our studio A, a hardware tape recorder simulator (Anamod) which simulates all types of machines, tapes, speeds ; you can even adjust the level of "noise" on it! This machine makes working with tape truly interactive, by allowing to work in "real-time" (at no extra cost).

## Fade in et out

Leave as little noise as possible on the tracks (cut edges, ditto for effects return) but do not fade the entry and exit. We always redo them in mastering, so you might as well keep some room to possibly cross-fade between 2 songs : for example by letting the resonance of cymbals last. Please tell us the duration you wish for any fade in and out.

[> Contact us for more informations](#)

# H) MIXING ADVICES

## Album editing

If you have a precise idea of the editing of your album, you can prepare a sample file (in Wave) for us, cut/marked at the placement of Index you want. This way, by placing all your files in order one after the other, we have both the indications for the spacing and for the indexes of the CD! Convenient for a Live Album. If you have no idea, we do this everyday and can take care of the assembly work.

## Listening/Speaker system

This is often a major, critical issue. This should be the first

thing to think about when buying your audio gear, or going to a studio.

Beyond the quality of the speaker model you purchase, following a few basic rules can help avoid bad surprises :

- The head must form an equilateral triangle with the two speakers.
- The angulation at the audio-listening sweet spot should be  $60^\circ$ .

- The tweeters must be at the level of the ears of the mixing engineer ; or even up to 1m80, angled towards the "sweet spot."

-The room's acoustics must be taken care of very carefully : put as much absorption material as possible behind the speakers with rock wool, carpet, etc.; try to break up reflections between parallel surfaces as much as possible and create diffraction with furniture, for example shelves filled with books behind you, thick rugs on the floor, fabrics stretched with rock wool underneath, etc.

- Placing the speakers on stands can help avoid harmful bass mistranslation. Speakers placed on a console strip can radiate more than 15dB in the bass...! Unfortunately, this is the case in many studios. Ideally, the speakers are set back at least 1.50m from the back wall.

- Who should attend the mastering session? Ideally the sound engineer, artistic director, and a member of the band. Better to avoid the whole band because the decision making can become problematic !!!

# H) MIXING ADVICES

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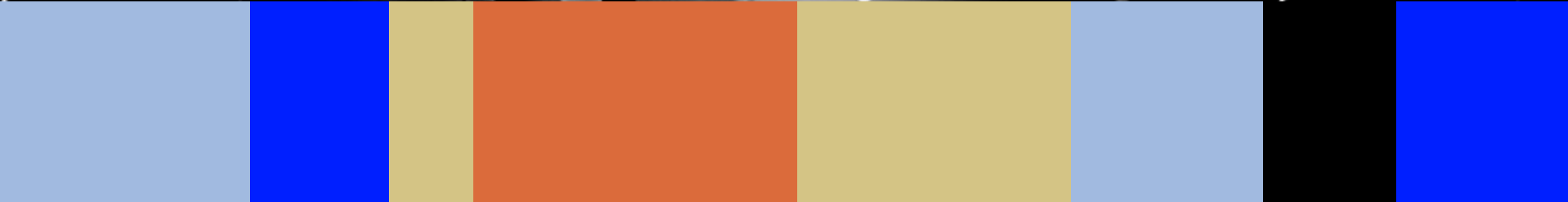
In some cases, to take full advantage of the mastering engineer's hindsight, artists or labels prefer to let me work alone. In these cases I do a first draft of 2 or 3 tracks that we send over the Internet, and then finalise the album after implementing any requested corrections. **This has the advantage of allowing the artist to listen to his songs, with as much distance as possible, in an environment that he knows well ...**



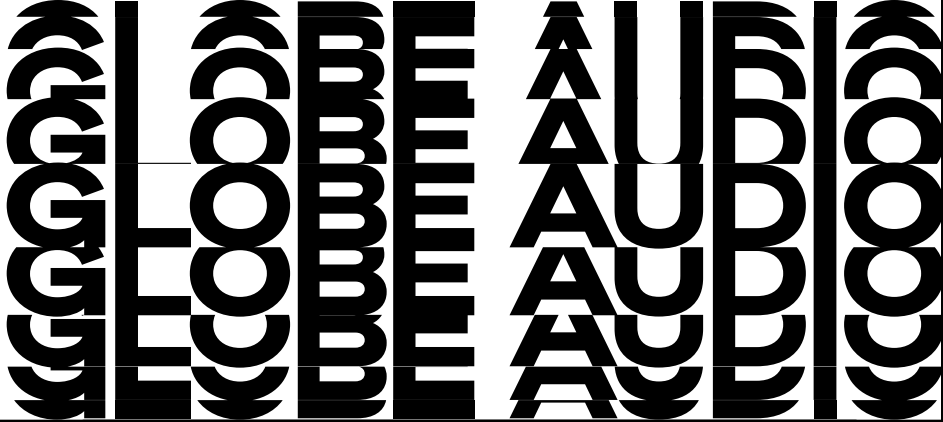
In this type of situation we obviously use apps such as Skype, Zoom, WhatsApp Video to make the session interactive and allow you to "experience" the mastering session, even if you are on the other side of the planet !

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Since 1999, thousands of projects have been Mastered at Globe Audio by Alexis, among which numerous have reached Gold and Platinum status.




Globe Audio Mastering was founded in Bordeaux in 1999 by Bertrand Reboulleau (Technical Manager) & Alexis Bardinet (Mastering Engineer).

SHANNON WRIGHT / IBRAHIM MAALOUF / ODEZENNE / NOIR DESIR / CLAUDIO CAPÉO / SCH / MYLENE FARMER / CALI / THE BLAZE / LOFOFORA / BIG FLO & OLIVIERO / YOUSSEF N'DOUR / TALISCO / KATIA & MARIELLE LABEQUE / ANAÏS / ZEBDA / TAHITI 80 / KERY JAMES / HOSHI / MICHEL JONASZ / KAREN DALTON / THIBAUT CAUVIN / MADEMOISELLE K / JENIFER / ART MENGIO / MARCUS GAD / EMILE PARISIEN / BÉNABAR / KENT / JEAN LOUIS MURAT / COCOON / TIKEN JAH FAKOLY / BERTRAND CANTAT / JULIEN DORÉ / BB BRUNES / LES WAMPAS / LES HURLEMENTS D'LEO / FRANCESCO TRISTANO / PABLO MOSES / AXEL BAUER / ROMAIN HUMEAU / MARCEL KHALIFE / EIFFEL / NICOLAS JULES / TOM FRAGER / PSYKUP / MICHEL LEGRAND / YARON HERMAN / ARCHIE SHEPP / CARMEN MARIA VEGA / NATASHA ST PIER & ANGGUN / LA RUDA / SIDILARSEN / SLEEPERS / ARANDEL / BLONDINO / CLARIKA / VOLO / LISA PORTELLI / CATFISH / AUFANG / MAKJA / ETIENNE M'BAPPE / LYSISTRATA / I ME MINE / TALISCO / BOTIBOL / DAVID REINHARDT / LA RUDA / KIM / WINSTON McANUFF / SPIRAL TRIBE...



# RMS Level Chart


	Peak (dB)	RMS level (dB)	
		Left	Right
Georges Benson & Earl Klugh - Collaboration	-2,5	-19,6	-18,6
Chostakovitch Symphony No.7 - Adagio	-3	-15,3	-14,2
Nirvana - Come As You Are	-0,3	-14,2	-13,9
Bob Marley - Positive Vibration	-0,2	-13,9	-14,6
Smashing Pumkins - Today	-0,3	-12,9	-11,6
Roxy Music - Avalon	-0,6	-12,6	-12,8
Nirvana - Lithium	-0,3	-11,9	-11,9
Marvin Gaye - What's going on	-0,6	-11,9	-11,5
Pink Floyd - Money	-0,6	-11,2	-11,9
Monty Alexander - Battle Hymn of the Republic	-2,9	-10,6	-12,3
The Dave Brubeck Quartet - Take five	-1,5	-10,1	-12,8
Ayo - Help is coming	-0,9	-10,6	-9,9
AC/DC - Highway to Hell	-0,1	-10,5	-10,9
Daft Punk - Harder, Better, Faster, Stronger	-0,1	-10,5	-10,8
Steely Dan - Hey Nineteen	-1,6	-9,7	-10,2
Nirvana - Rape Me	-0,3	-9,6	-9,9
Rage Against The Machine - Killing In The Name	-0,4	-9,6	-9,5
Daft Punk - One More Time	-0,3	-9,6	-9,9
Miles Davis - So What	-1,2	-11,2	-7,9
Rokia Traore - M'Bifo	-0,2	-9,5	-9,6
Björk - Oceania	-0,6	-9,6	-9,2
Daft Punk - Around The World	-0,1	-9,4	-8,7
Diana Krall - Temptation	-0,1	-9,1	-10,6
Peter Gabriel - Steam	-0,6	-9,3	-9,1
Puppetmastaz - Puppetmad	-0,6	-9,2	-8,9
Coldplay - Viva la Vida	-0,2	-8,9	-8,6
The White Stripes - Seven Nation Army	-0,1	-8,9	-9,1
Ben Harper & The Innocent Criminals-Lifeline	-1,4	-8,9	-8,6
Eels - Novocaine For The Soul	-0,1	-8,9	-8,2
Camille - Prendre ta Douleur	-0,3	-8,5	-8,6

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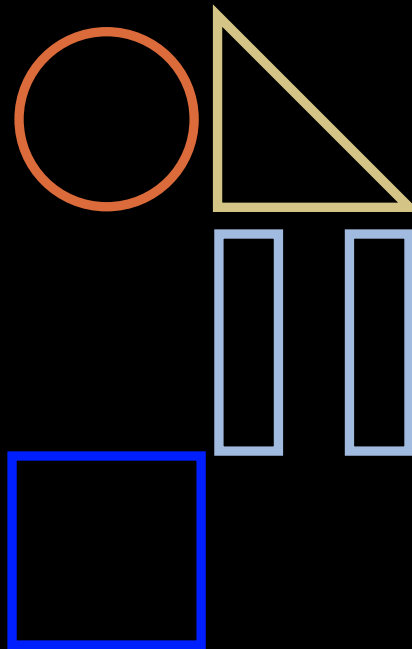
Artist  
Track Name

	Peak (dB)	RMS level (dB)	
		Left	Right
Foo Fighters - Monkey Wrench	-0,1	-8,5	-8,5
IAM - Petit frère	-0,7	-8,5	-7,6
Sting - Inside	-0,3	-8,3	-7,6
No One Is Innocent - Les Désespérés	-0,1	-8,2	-8,5
M - Qui de nous deux	-0,6	-8,2	-7,9
Norah Jones - Don't Know Why	-0,2	-7,9	-8,3
Audioslave - Cochise	-0,7	-7,9	-8,2
Led Zeppelin - Dazed and Confused (remastered)	-0,6	-7,7	-8,2
Black Eyed Peas - I gotta feeling	-0,7	-7,8	-7,9
Jimi Hendrix - Voodoo Child (remastered)	-0,6	-7,2	-7,9
AC/DC - Safe in New York City	-0,1	-7,6	-7,3
Oasis - The Turning	-0,1	-7,3	-7,6
Johnny Halliday - Guitar hero	-0,6	-7,6	-6,8
Gojira - Oroburus	-0,1	-7,2	-7,3
Tom Frager - Lady Melodie	-0,1	-7,1	-7,2
System Of A Down - Know	-0,2	-6,9	-6,6
The Raconteurs - The Switch & The Spur	-0,2	-6,9	-7,2
Eminem - Without Me	-0,3	-6,9	-7,2
Berg - Are You Gonna Be My Girl	-0,1	-6,9	-7,2
Slipknot - Psychosocial	-0,1	-6,8	-6,2
Dr Dre - Still D.R.E	-0,2	-6,6	-7,2
Muse - Stockholm Syndrome	-0,1	-6,5	-6,6
Muse - Hysteria	-0,1	-6,5	-6,2
Audioslave - Show Me How To Live	-0,1	-6,5	-7,2
R-Kelly - Fiesta	-0,2	-6,4	-6,2
System Of A Down - Suite Pee	-0,2	-6,2	-6,6
Justice - Let There Be Light	-0,1	-6,2	-5,9
Queen Of The Stone Age - Little Sister	-0,1	-5,9	-5,2
Justice - Phantom	-0,4	-5,9	-5,7

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