

MUSIC TODAY EUROPE

explains

LOUDNESS AND DYNAMIC RANGE

And how they affect Airplay. A short Guide that explains Key Concepts.

Do you really know what “loudness” and “dynamic range” mean and how these concepts affect airplay? This knowledge is crucial for any serious music producer and artist that want to produce music eligible for airplay.

Follow us: You enter a big room and within the room you can place yourself wherever you want: You is you and the room will not change that. You love to jump up and down in the room but if you would try to break through the ceiling you would just break your bones.

ROOM, SIGNAL, SIZE, CEILING

What has this analogy to do with Loudness, Dynamic Range and Airplay? A **24 Bit file**, to mention an example, is nothing else but an **audio room**: A room that is empty but offers space for a lively **audio signal** that loves - just like you - to jump up and down in the audio room. The audio signal is smaller than the audio room and it can place itself almost anywhere in the big room.

Your size is measured from your head to your toes in *cm*. The audio signal's “size” is measured similarly: The measuring unit is **LU (Loudness Units)** and the audio signal's “size” is measured from the **softest part** (lowest jump) to the **loudest part** (highest jump): The space in between (the “size”) is called **Dynamic Range**.

The audio signal knows - just like you - that there is a **ceiling** that cannot be broken through. The audio room ceiling is very high and beyond the ceiling, space and time end. Every attempt to break through the ceiling is stupid (for beyond the ceiling is nothing) and breaks the audio signal's bones.

THRASHED BY AUDIO ENGINEERS

Now imagine: You enter a room and an audio engineer throws you against the wall, breaks your bones, ties you up to the ceiling and says:

“You are a better person now for you hang higher and scream louder.”

Would you agree? No? But this is what most audio engineers do to audio signals: To make them loud, the engineers break the signals' bones, cut transients, diminish the dynamic range, cause distortion and clipping and say:

“I tied the audio signal up to the ceiling and paralysed it! Now it is better for it screams louder! Ideal for radio, TV and airplay!”

THE FAIRY TALE OF LOUDNESS

The conclusion “Louder = Better” is a misbelief many engineers share. “Loudness” (a high position of audio material within the audio room) has never been a quality criteria in **professional music production**.

“But loud songs stick out against competitors”. Yes and no. The simple truth: Anyone can relativate the crafted loudness by turning the volume knob up (I love that song!) or down (dislike!). Unfortunately, the volume knob can't fix the broken bones of defect audio material that is loud at the expense of the sound quality. Too bad! For **sound quality** is the **quality criteria** in professional music production.

“But isn't loudness great for airplay?” Radio and TV stations do not care about the loudness of audio material at all! All audio signals are levelled before they are aired. After loud tracks are reduced and soft tracks are raised in volume, the sound quality is the only difference left.

Since radio and TV stations do care about a **good sounding programme** they prefer intact and dynamic material that is likely to survive the heavy signal processing by broadcast stations: Thus, originally loud but defect material will probably be sorted out. MTE

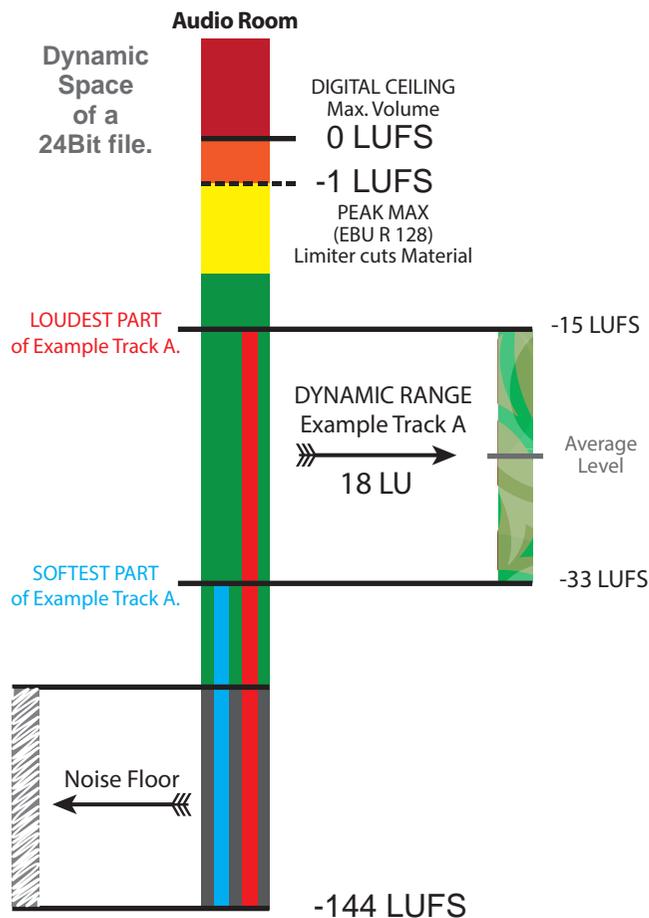
UNDERSTANDING LOUDNESS AND DYNAMIC RANGE

by Music Today Europe

In Accord with the European Audio Norm **EBU R 128**

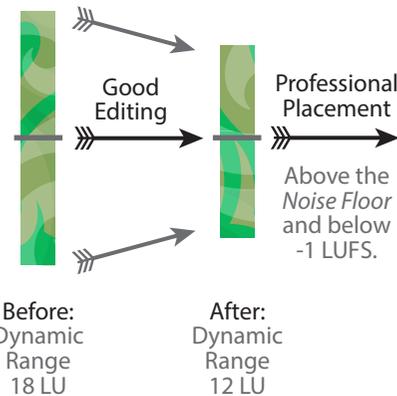
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IN GENERAL



Best Engineers process in Line with Broadcast Standards

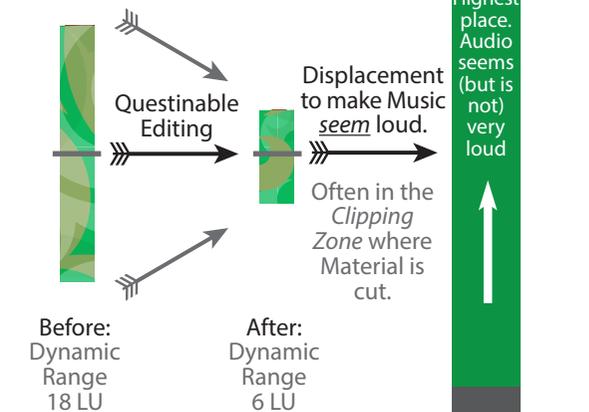
Good engineers aim for **great sound**. They maintain most of the given **dynamic range** and only tame too extreme passages. This approach is a key to an **intrinsically loud**** and lively mix. Good engineers know that the relative position of the material within the audio room will neither affect the sound nor the high **intrinsic loudness**** of the material.



Sound:	Lively, natural, exciting.
Optimal for:	Radio, Film, CD, Internet.
(File) Loudness*:	Soft due to Placement.
Make it louder:	Volume Knob.
Real Loudness**:	Intrinsically loud.
Radio Loudness:	Good Mix up to 100%.
Radio Sound:	Amazing.
Material & Transients:	Mostly intact.

Most engineers IGNORE Broadcast Standards

For no clear reason, most engineers believe that "**Loudness**"* (a high position of the material within the audio room) is the main target. Thus, they destroy the **dynamic range** and *intact sound* of given material in order to brutally push the audio material against the ceiling of the audio room: Ironically, the result will sound dull and be **intrinsically soft****.



Sound:	Static, unnatural, boring.
Usage:	Private, CD, Internet.
(File) Loudness*:	Loud due to Displacement.
Reduce Loudness:	Volume Knob.
Real Loudness**:	Intrinsically soft.
Radio Loudness:	Often less than 100%.
Radio Sound:	Garbage in, Garbage out.
Material & Transients:	Often destroyed.

LU = Loudness Unit = dB, LUFS = Loudness Units (relative to) Full Scale (0).

* "Loudness": Played back songs are perceived as "louder" and "softer" due to different material positions within the audio container and due to mixing approaches.
 ** "Intrinsic Loudness": Level songs at the same average level (Integrated Loudness) to reveal their real loudness: Loud songs can suddenly be soft and soft songs loud.

HOW LOUDNESS AFFECTS RADIO PROCESSING

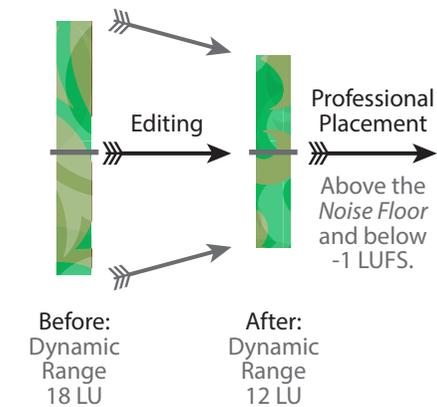
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Best Engineers process in Line with Broadcast Standards

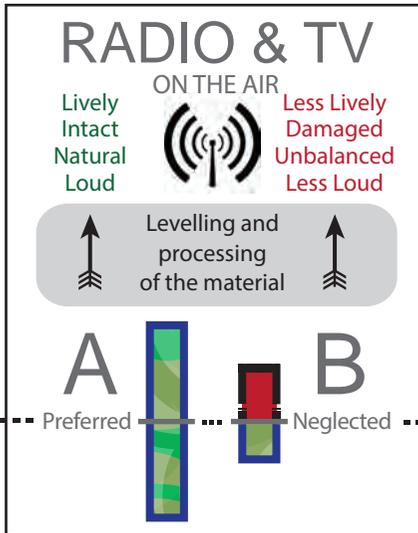
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Low average level due to a natural dynamic range that does not allow for a high placement.



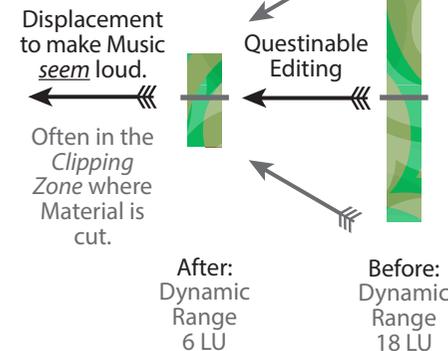
Radio and TV stations level material before it is aired. An effect chain reduces the (average) level of loud material and boosts the (average) level of soft material. Thus, the material is aired at the very same average level (**Integrated Loudness**).

Therefore, the original "**Loudness**" (the position of the material within the audio room) does not play a role and can't be used to one's advantage. What matters is the sound quality:

Intact audio material (A) sounds much better *on the air* than **defect material (B)** and is at least as loud.



Before Levelling: High average level due to a diminished dynamic range that allows for an extreme placement.



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"Loudness" comes from your Volume Knob. **Great Sound** comes from a good Engineer.