

Workshop:
**'Loudness in
Distribution'**

**Dec 8+9, 2011,
EBU, Geneva**

day 2

recap

Broadcaster

Distribution

Consumer

Distribution

```
graph TD; A[Distribution] --- B[Concept]; B --- C[Alignment];
```

Concept

Alignment

Concept

**Self-healing
feedback loop**

**24 One-hour
measurement blocks**

3 am

**Pick the top ones
(within 2 LU)**

**Integrate these blocks
→ **service loudness****

If service loudness
≠ target level

-23, -31

Correct **0.5** LU per day
@ 3 am

MPEG1L2:
min 2 LU possible

Dolby Digital (Plus), HE-AAC:
min 1 LU possible

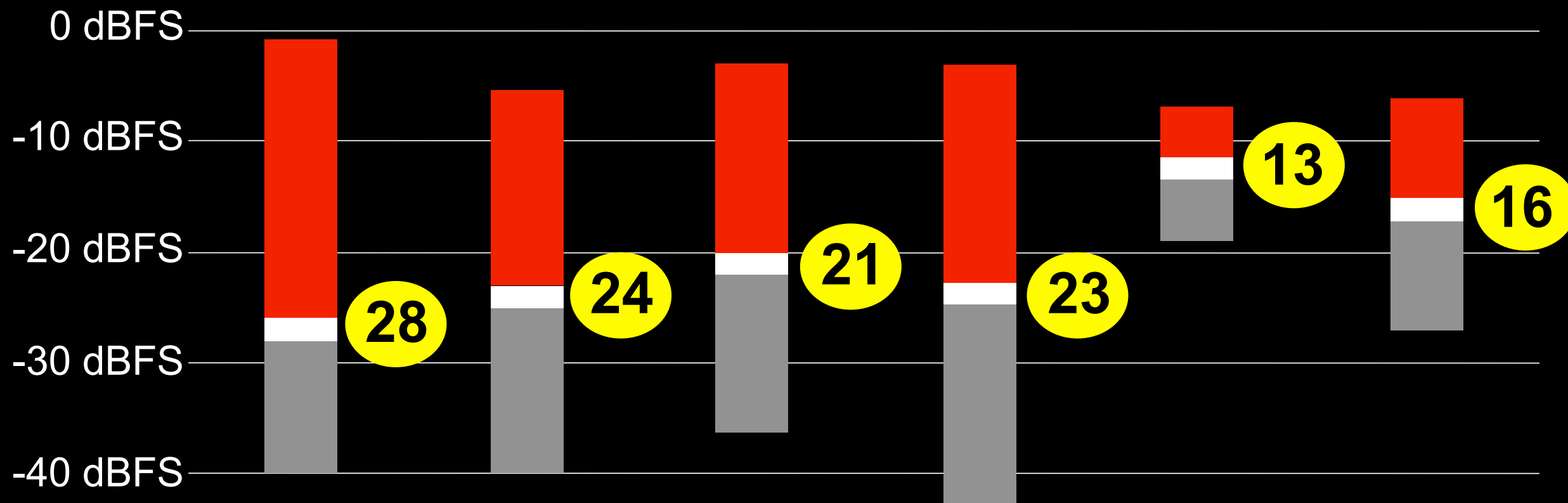
Correction

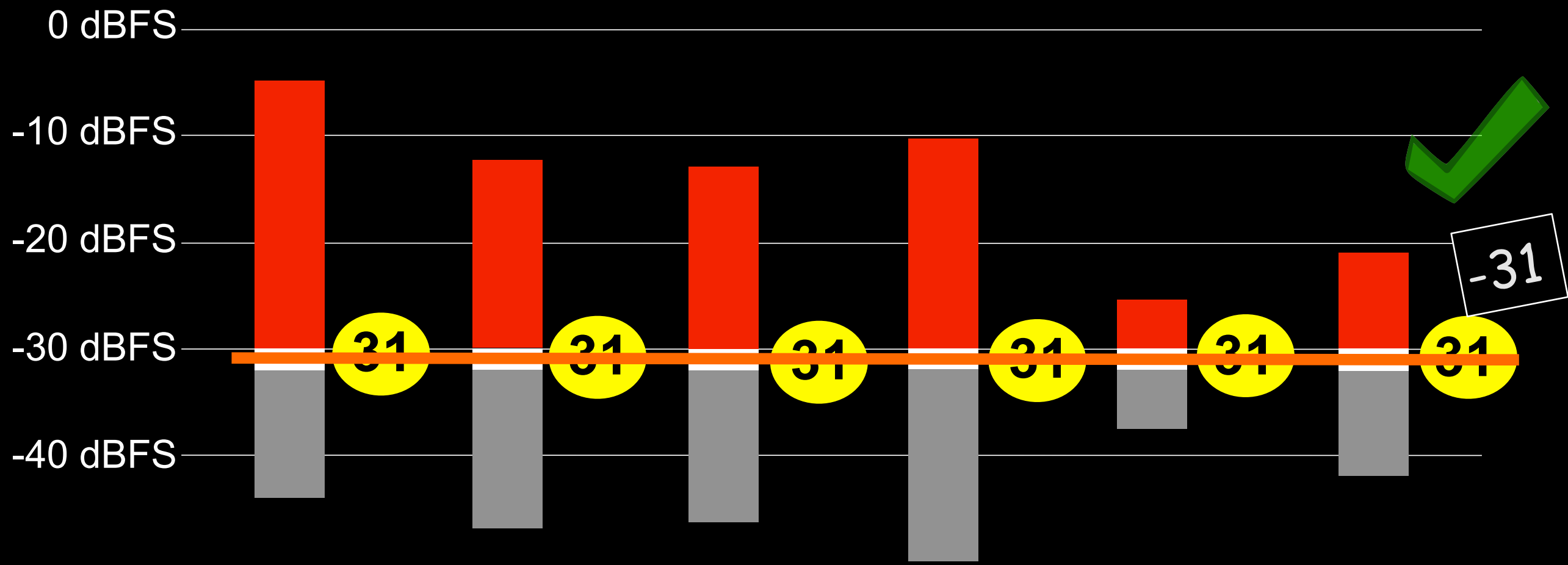
Within the bitstream

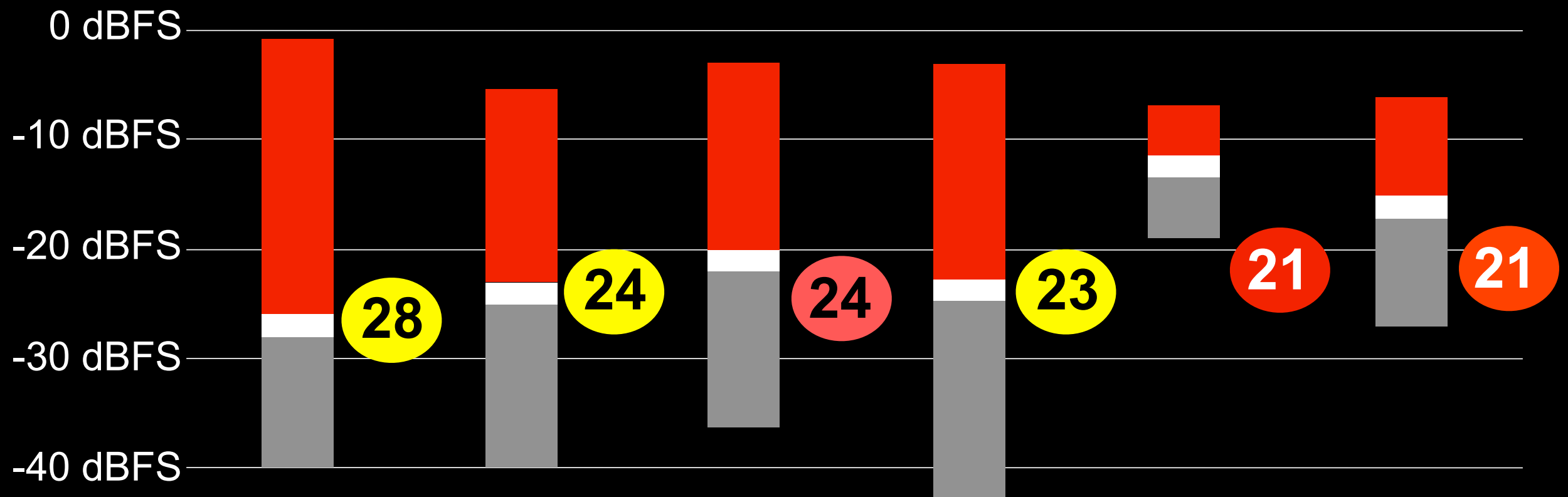
MP1L2, HE-AAC: PRL
(program_ref_level)

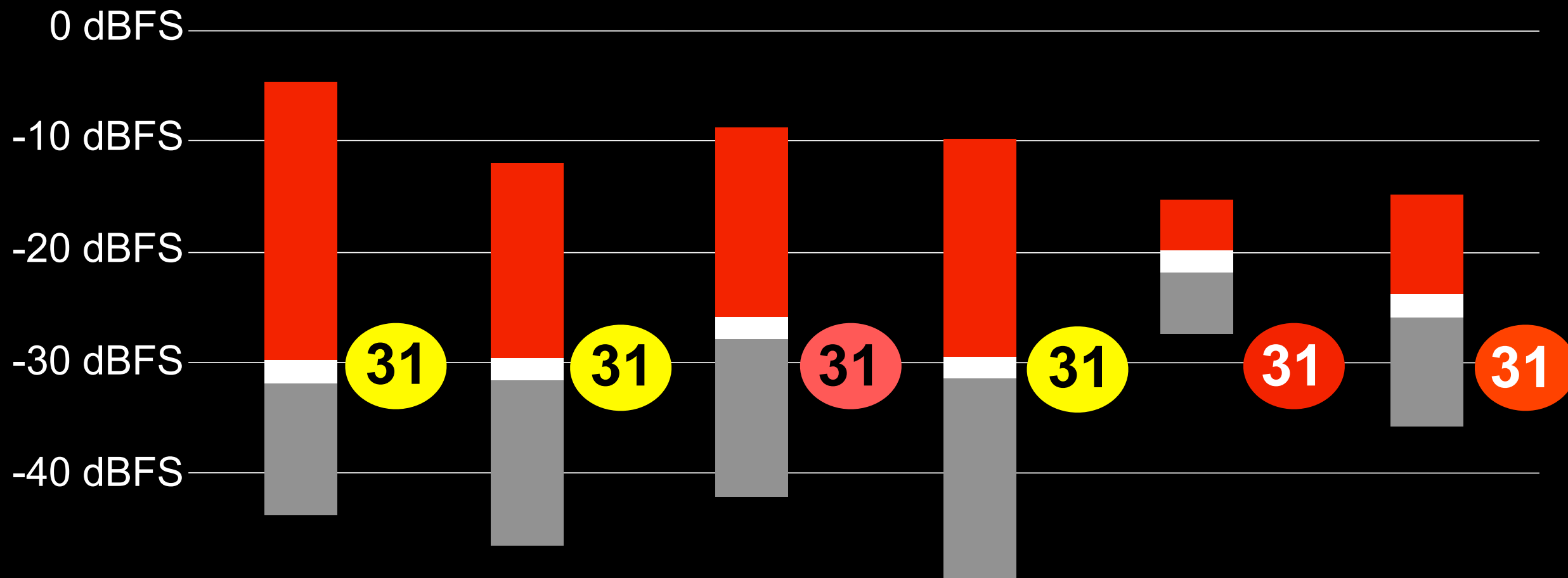
Dolby Digital (Plus): dialnorm

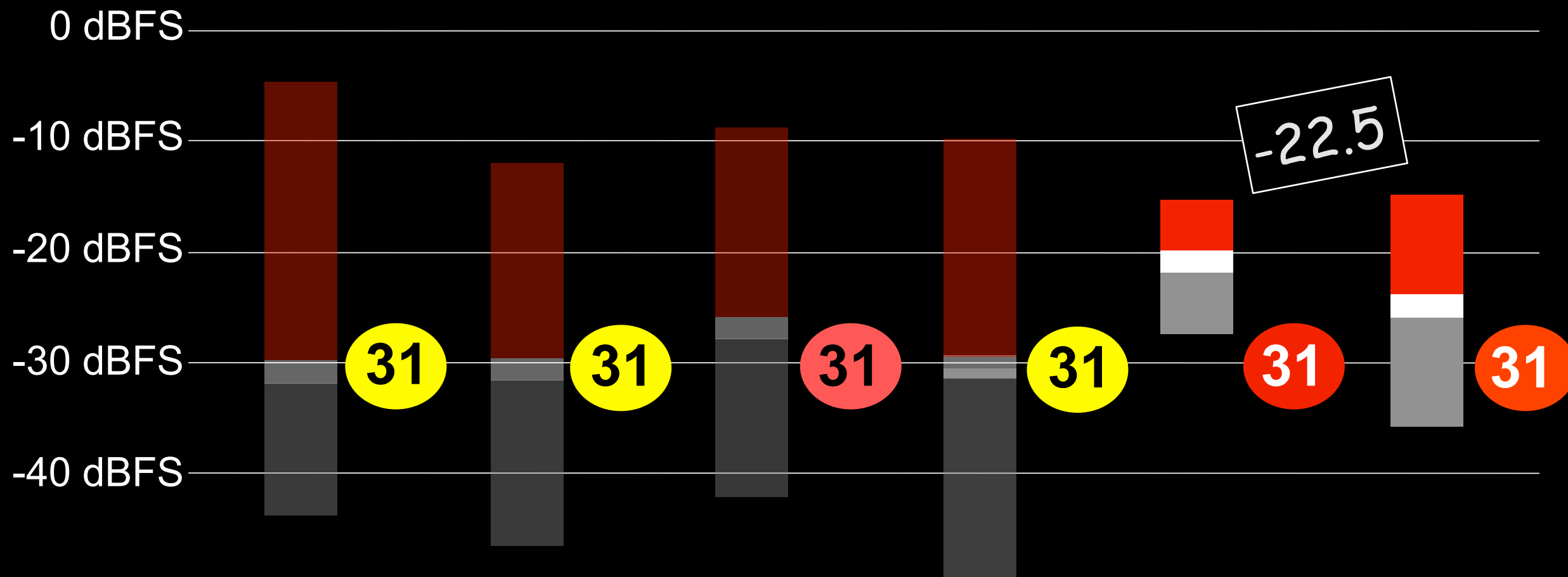
**What if dialnorm
is dynamic?**



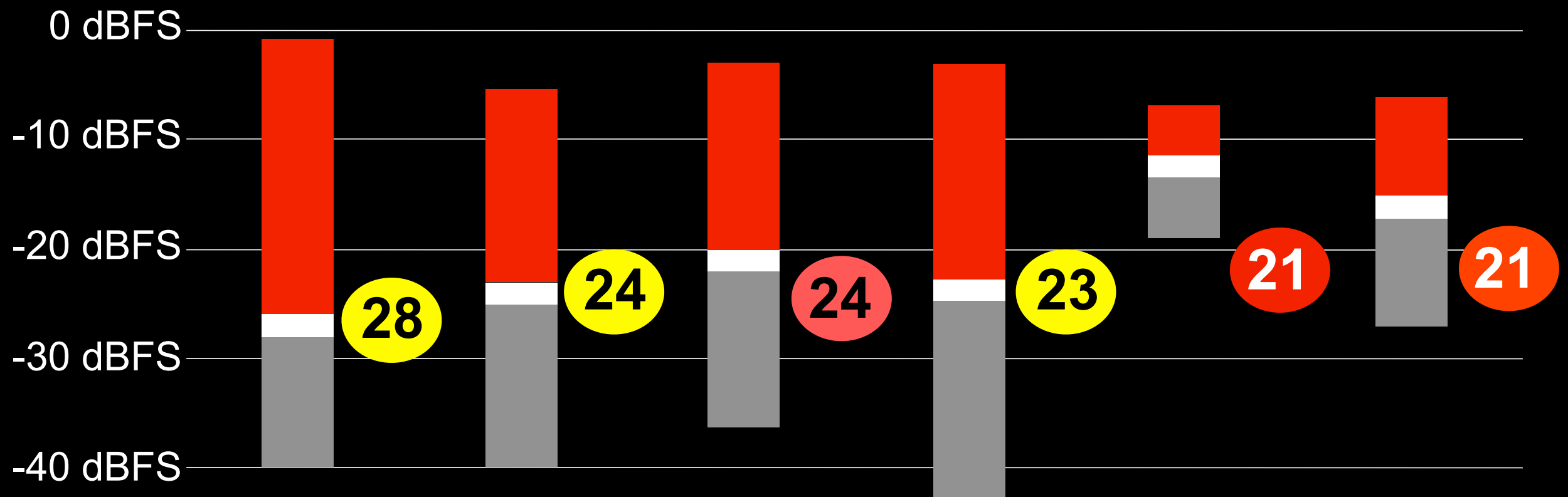


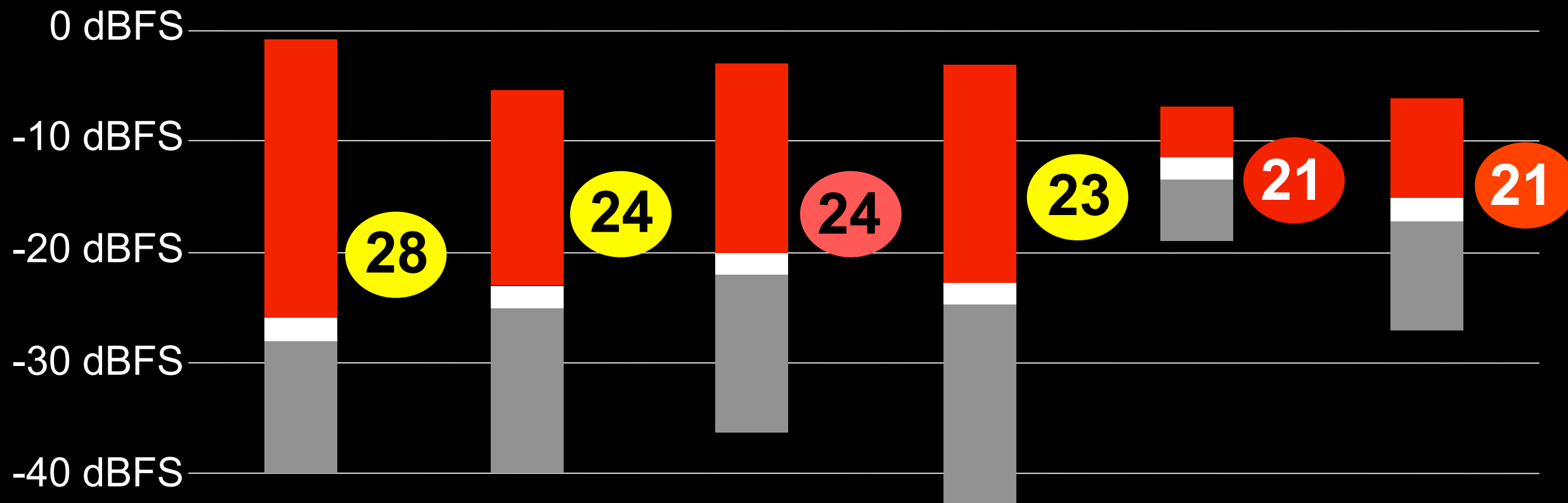




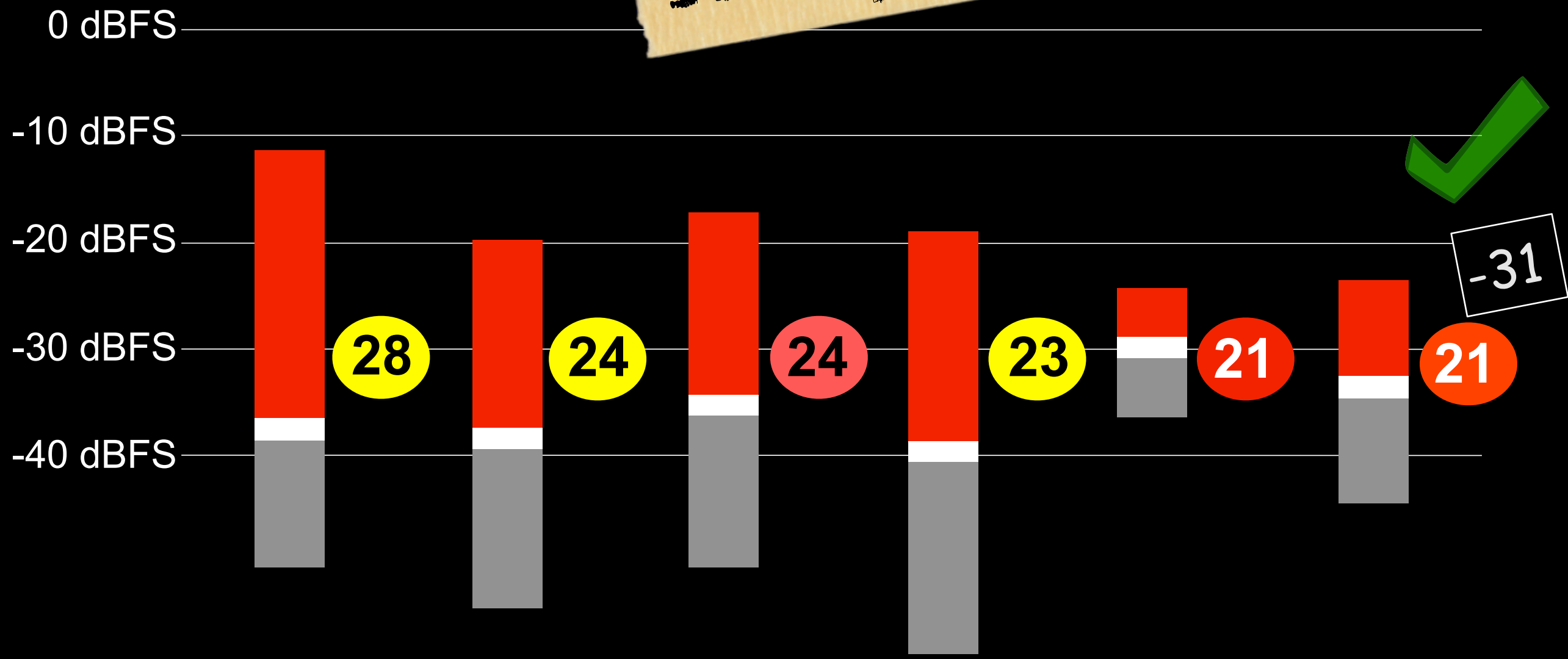


necessary correction: -8.5 LU !!





16 days !!



Distribution

```
graph TD; A[Distribution] --- B[Concept]; B --- C[Alignment];
```

Concept

Alignment

Alignment

same loudness,
appropriate True Peak

Production:

-1 dBTP

Potential
Underread

Data reduction codecs:

-3 dBTP

Coding
Headroom

Analog FM:

-6.7 dBTP

max.
Deviation

Philosophy

new

Signal conditioning @ distribution stage

(or tailormade signals)

Preemphasis Limiting,
15 kHz LP

Consumer

-23

Unity Gain

MPEG 1L2,
HE-AAC

-31

Non-unity Gain

Dolby Digital
(Plus)

THX: -27 ... :(

-23

Stereo

-31

Multichannel

-23

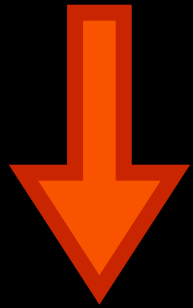
Stereo



+ 8 LU

Multichannel

- 8 LU



Stereo

-31

Multichannel



france **télévisions**

CSA regulation





