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EBU R128

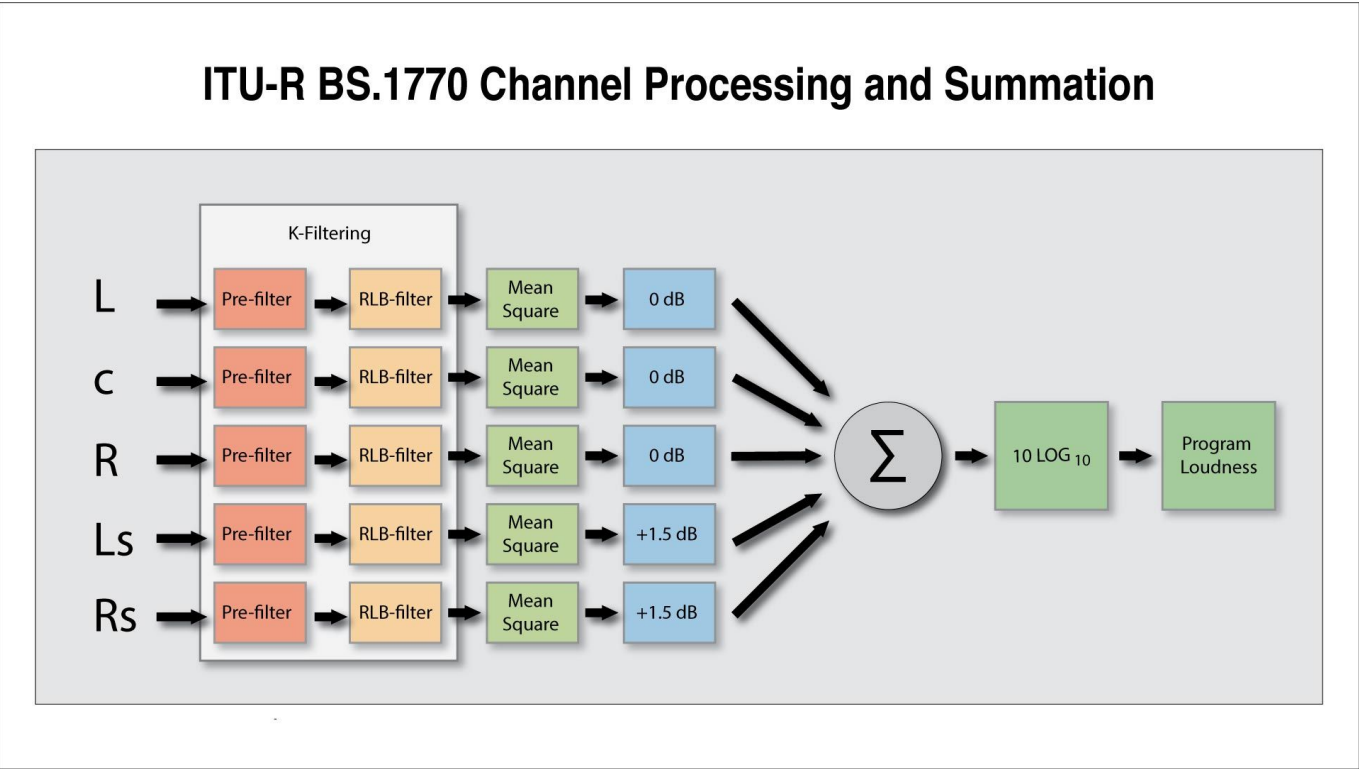
https://tech.ebu.ch/loudness

LUFS

EBU R128, True-peak

LUFS¹⁾ LKFS²⁾ LKFS, LUFS

K-weighted 가 RMS dBFS, LUFS(), LU(, ex) 0LU=-23LUFS)



Integrated Loudness

LUFS

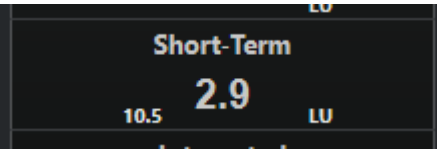
LUFS(Loudness Unit, referenced to Full Scale).

EBU R128

-23 LUFS(³⁾ : ±1LU)

.

Short-Term Loudness



3

1

.

Momentary Loudness

400ms(0.4)

100ms

.

⁴⁾

Loudness Range

Loudness range

LU

.

가

가

가

Loudness Range

가

10%

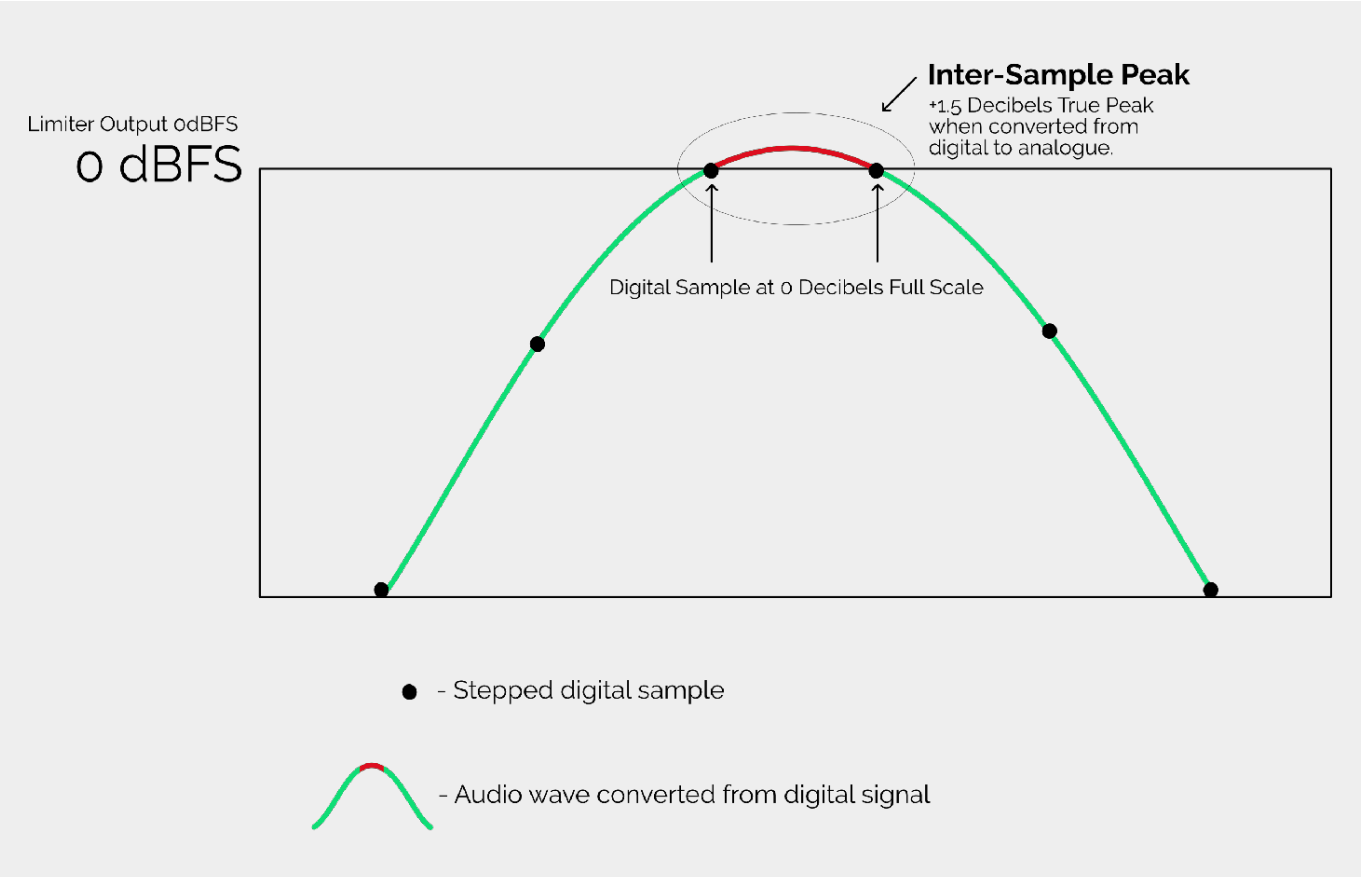
가

5%

.

⁵⁾

True-peak



가 Peak , Peak 가 ,
D/A , Peak 가 .
Peak가 Peak .
Peak True-peak
True-peak , dBTP .
True-peak ITU-R BS.1770
dBTP 100%, .

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EBU R128 .
Loudness Unit(1LU 1dB) .

- LU :
- LUFS :
- 1LU = 1dB

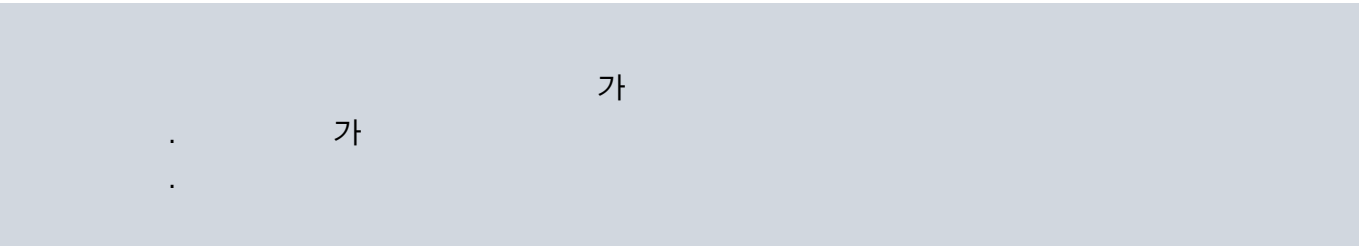
EBU -23LUFS 0LU .

LUFS reference

가
가 .

,
6)
.

7)
.



, 가 .

Loudness Normalization

reference

LUFS	Integrated(Program) LUFS
-10LUFS	Integrated LUFS

Platform	(LUFS)	(LU)	
EBU R128 ⁸⁾	-23LUFS	0LU	±1LU ⁹⁾
¹⁰⁾	-24LUFS	-1LU	±2LU ¹¹⁾
Itunes	-16LUFS	7LU	
Tidal	-14LUFS	9LU	
Spotify	-14LUFS	9LU	
YouTube	-14LUFS	9LU	

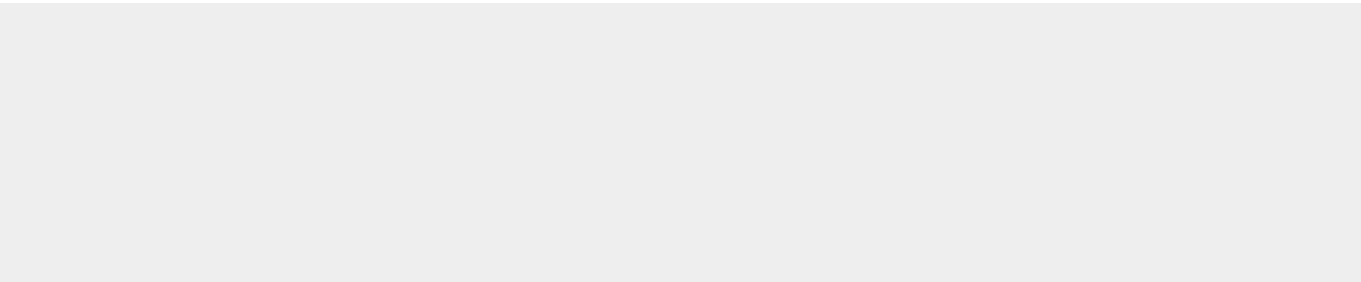
2020-9-06

LUFS reference

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LUFS

Cubase Pro LUFS 가 Supervision LUFS 가





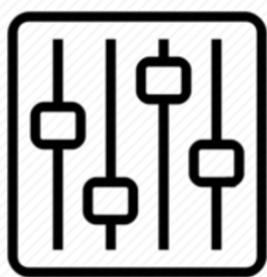
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- Twitter
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- 1) Loudness units relative to full scale
- 2) Loudness, K-weighted, relative to full scale
- 3) Tolerance
- 4) 가 가
- 5)
- 6)
- 7)
- 8) <https://tech.ebu.ch/docs/r/r128.pdf>
- 9) 11)
- 10)

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