



UdK Berlin
Sengpiel
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F + A

! "Test for Quick Audio Men" English Answers 1

Write down quickly a numerical value or a slogan.

1. What is the frequency of the sinusoidal high frequency (HF) bias used on the recording head of an analog studio tape machine with 38 cm/s (15"/s) tape speed?

80 kHz (up to 150 kHz).

2. What do you choose as your frequency sine wave test tone when setting up the high frequency (HF) bias for this tape machine?

10 kHz.

3. What attenuation in dB above the sensitivity maximum, you set the bias regulator as operating point for optimization of the tape make (sort)?

$\Delta L = (-) 3 \text{ dB}$. (According to the tape manufacturer).

4. The distortions (THD) at a tape recording consist mainly of which harmonics?

k_3 is the third harmonic of the fundamental frequency.

5. Which tape flux should be used for a Dolby A tape recording (the most common noise reduction system) resulting from the Dolby tone-recorded on tape?

That are **185 nWb/m** at 320 nWb/m 100% line level (full scale international) or **297 nWb/m** at 514 nWb/m 100% line level (full scale ARD stereo level) because the Dolby tone has to be always **-4.75 dB** below full scale.

6. The level display of a recorded Dolbyton (Dolby A) has to be how much on your ARD stereo modulation meter (quasi peak)?

-4.75 dB below 100% display mark.

7. What is the bandwidth B Hz of a presence filter setting with the center frequency of $f_0 = 4 \text{ kHz}$, if the Q factor (quality factor) = 2 is set?

2000 Hz, because: $B = f_0 / Q$.

8. Which attack time and which release time do you set at your limiter if you do a voice recording?

Attack time: **1 ms** and release time: **1 sec** (As a starting point).

9. At what distance in meters to each other, do you set-up your stereo loudspeakers in the control room?

Speaker base: **2.50 m**. (As a starting point).

10. Which digital headroom you need to your DAT recorder if you think at overdriving reasons?

You do not need digital headroom. Do the recording level almost up to clipping, but not more.

11. By what psychoacoustic means you can pass on the higher sound quality of a 18-bit or 20-bit recording to a usual 16-bit CD master?

You do it by "**shaping with dither**".

12. What is the size of the SMPTE time code unit called, which is less than one second, and how many of them go to one second when you create a CD master, if you use for example the PCM 1630 converter?

It's called **frames**. **30 frames NDF** (non-drop frame).

13. At which voltage is the rated AC voltage of the electrical power (mains) in Germany now set and which frequency do we have?

230 volts, 50 Hz (220 volts is long gone).

14. What nominal power (mains) voltage is found in United States and what frequency do they have there?

The rated voltage is 117 volts at 60 Hz. (Not 110 volts, more to 120 volts).

15. At which frequency we find the maximum of the amplitude-frequency statistics, if classical music (symphony) is considered?

It is at $f = 650 \text{ Hz}$. Note: This is much lower in frequency than the usual technical measurement frequency of 1 kHz.