



# ! "Test for Quick Audio Men" English Answers 1

Write down quickly a numerical value or a slogan.

UdK Berlin  
Sengpiel  
10.96  
F + A

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.