# Nakamichi ABC Boek

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## Paragraph 41.1

It is not common knowledge that manufacturers of magnetic tape issue extensive specifications of their products. We therefore provide as example the data provided by AGFA, other manufacturers provide similar stuff. The table on the left categorizes various characteristics, while the curves in the figure on the right show how electrical characteristics relate to the strength of the recording head bias.

We see the following curves and their function from top to bottom:

$A_v5$ is the tape output for 5% distortion, below that the one for 3% distortion ($A_v3$). Distortion is measured as the percentage of third harmonic, because this is practically the only culprit when it comes to tape saturation.We see that the overload reserve is hardly 1dB over zero level, which is indicated here as 250nWb/m. The NAB level of 160nWb/m is just over 4dB below that, and it looks like this gives a better result, but at the bottom of the curves we see that S/N ratio stays the same, of course.

The third curve ($A_{10max}$) is the maximum amount we can get on tape at 10kHz, because the tape will start erasing itself there. The more current[1] we add at this frequency, the less gets on tape.

Below that the dB-scale starts over again, and the first curve we see is marked on the left with a small circle. This shows tape magnetization at 6300Hz, as a function of the amount of bias that we add to the recording at the head. Agfa tells us with this that we can use this behavior to adjust bias: we increase bias so much till the signal of 6300Hz reaches it maximum level on tape, and then turn the bias further up until the signal strength has become 4.5dB lower. At that point we are at the vertical 0 line, which represents the recommended amount of bias. This method has the advantage that we do not have to measure the bias current itself, we can rely on the measuring instrument connected to the output of the recorder.

We now also see that this setting is the maximum for 333Hz, but this maximum is too vague to use for calibration[2]. The drop-off at 10kHz that now follows, must be compensated during recording by an appropriate lift.

Next are some distortion curves, to which the dB scale on the left applies. $K_3250$ is, of course, the third harmonic at the DIN zero level, below that distortion relative to NAB. In both cases the distortion is minimal at the chosen working point of bias.

Finally four straight lines provide the noise floor of the tape, for two cases: half track and quarter track.

The distance between the $K_3$ curves for DIN and NAB makes it clear that a recording in Europe is viewed with different eyes and meters than in the US. The VU meter does not respond to peaks, which is okay of overloading does not have serious consequences. The European practice makes use of a more royal piece of overload capacity, which is possible when peak reading meters are used.

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[1] What is meant here, is the signal current, not the bias current

[2] It is not clear if this maximum refers to Av5/Av3 or E333

# AGFA-GEVAERT

## SUPER FERRO DYNAMIC

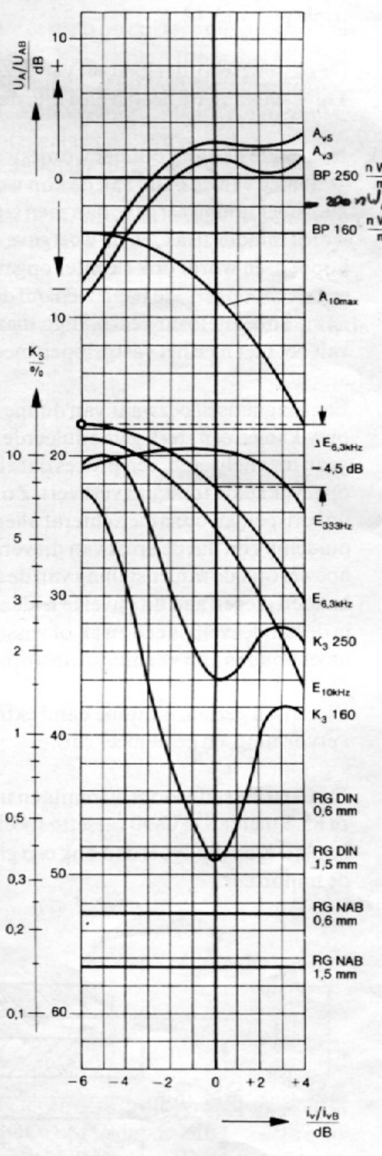
Compact Cassette **C 90**

**Rauscharmes, extrem hoch aussteuerbares Magnetband auf Eisenoxid-Basis für die Verwendung in Compact-Cassetten.**

### Technische Daten

| Elektroakustische Daten | | Einheit | PE [illegible] (C 90) |
|---|---|---|---|
| **Meßbedingungen, Begriffsdefinitionen und Prüfverfahren** (siehe Rückseite) | | | |
| **Bandgeschwindigkeit** | | cm/s | 4,75 |
| Spurbreite | | mm | 1,5 |
| Bandfluß pro mm Spurbreite für BP | | pWb | 250 |
| Sprechkopf-Spaltbreite | | µm | 2,5 |
| 1. Empfindlichkeitsabnahme für den empfohlenen Arbeitspunkt | $\Delta E_{6,3\,kHz}$ | dB | 4,5 |
| 2. Abweichungen des empf. Arbeitspunktes von dem des Leerteils | $i_{vA}/i_{vB}$ | dB | 0 |
| 3. Klirrfaktor (250 nWb/m) | $K_3$ 250 | % | 1,6 |
| Klirrfaktor (160 nWb/m) | $K_3$ 160 | % | 0,4 |
| 4. Vollaussteuerung ($K_3$ = 3 %) | $A_{v3}$ | dB | + 1,5 |
| Vollaussteuerung ($K_3$ = 5 %) | $A_{v5}$ | dB | + 2,5 |
| 5. Relative Empfindlichkeit bei 333 Hz | $E_{333\,Hz}$ | dB | + 1,5 |
| 6. Relative Empfindlichkeit bei 10 kHz | $E_{10\,kHz}$ | dB | + 1,5 |
| 7. Rel. Höhenaussteuerbarkeit bei 10 kHz | $A_{10\,max}$ | dB | + 2,0 |
| 9. Ruhegeräuschspannungsabstand, bezogen auf Bezugspegel: | | | |
| a) DIN | RG | dB | 48,5 |
| b) NAB Standard | RG | dB | 56,5 |
| 10. Ruhegeräuschspannungsabstand, bezogen auf Vollaussteuerung $A_{v5}$ (Dynamik) | | | |
| a) DIN | RGA | dB | 51,0 |
| b) NAB Standard | RGA | dB | 59,0 |
| 13. Löschdämpfung | | dB | ≥60 |
| 14. Empfindlichkeitsabweichungen bei $\lambda$ = 140 µm | | | |
| a) innerhalb einer Rolle | | dB | ≤ 0,5 |
| b) von Rolle zu Rolle | | dB | ≤ 1,0 |
| **Magnetische Werte** | | | |
| 15. Koerzitivkraft | $_IH_c$ | A/m /Oe | 24 · 10³/ 300 |
| 16. Sättigungsremanenz | $B_{RS}$ | mT/G | 140/1400 |
| 17. Remanenter Sättigungsbandfluß | $\Phi_{RS}$ | pWb | 500 |
| 18. Oberflächenwiderstand Magnetschicht | | Ω | ≤ 10⁹ |
| **Mechanische Werte** | | | |
| 19. Trägermaterial | | Polyester vorgereckt | |
| 20. Nenndicken: Träger | | µm | 8,0 |
| Schicht | | µm | 3,5 |
| Total | | µm | 11,5 |
| 21. Thermischer Dehnungskoeffizient (ΔL/L)/°C | | | 2 · 10⁻⁵ |
| 22. Feuchtlängungskoeffizient (ΔL/L)/% RF | | | 1 · 10⁻⁵ |
| 24. Elastische Dehnung bei einer Last von F = 2 N | | % | ≤ 1,5 |
| 25. Plastische Dehnung | | % | ≤ 0,2 |
| 26. Breite und Toleranzen | | mm | 3,81 +0 −0,05 |

März 1975




Voorbeeld van een AGFA band specificatieblad