TAPE COATING THICKNESS, RETENTIVITY, AND REMANENCE SUMMARY

From the Manufacturers' Data Sheets

J McKnight, Magnetic Reference Lab
mrltapes@flash.net

Manufacturer	Model	Coating Thickness /[µm]	Coer-civity /[kA/m]	Reten-tivity /[mT]	Remanence Fluxivity /[nWb/m]	rms of Remanence Fluxivity(1) /[nWb/m]	Remanence Fluxivity Level(2) /[dB]	Remanence Fluxivity Category(3)
Ampex	705	4.3	27.9	140	605	425	7.5	(4)
3M	8206	5.0	29.1	120	610	425	7.5	
Historical Reference:								
3M	111	11.2	21.6	92	1030	720	12.0	A
3M	808	8.1	29.5	130	1025	720	12.0	A
3M	186	9.1	29.1	120	1080	750	12.7	A
Ampex	406	12.7	23.1	115	1460	1020	15.0	B
3M	206(5)	13.7	25.5	105	1430	1000	15.0	B
3M	806	10.2	29.5	140	1430	1000	15.0	B
Ampex	456	14.0	26.4	140	1950	1370	17.6	C
BASF	526	12.0	23.9	157	1890	1320	17.3	C
BASF	468	14.5	30.0	140	1990	1395	17.8	C
BASF	911	16.0	25.5	145	2320	1625	19.1	C
3M	226	14.2	29.5	140	1980	1390	17.7	C
3M	250	17.3	29.1	120	2070	1450	18.1	C
3M	986(6)	12.4	29.1	160	2000	1390	17.7	C
Ampex	499	16.5	27.9	165	2724	1900	20.5	D
BASF	900	18.0	28.6	155	2790	1950	20.7	D
3M	996	16.0	28.7	170	2700	1900	20.5	D
Quantegy	GP9	17.3	28.0	150	2600	1820	20.1	D

BASF data 96-07-08, prelim data sheets from Michael Ryan of BASF

1994-03-07 rev 1996-07-08,

Rev 2001-07-30 Note: Ampex is now Quantegy. BASF is now EMTEC.

What are these numbers good for? The bias field required is approximately proportional to the product of the coating thickness and the coercivity. The remanance fluxivity is equal to the product of the coating thickness and the retentivity.

Footnotes:

1. Column 7 "rms of Remanence Fluxivity / [nWb/m]", is simply 0.7 times the previous column "Remanence Fluxivity". Under the simplifying assumption of linearity, it would be the rms value of a sine wave whose peak value was equal to the Remanence Fluxivity.

2. Column 8 "Remanence Fluxivity Level / [dB]" is the level relative to 180 nWb/m (the old "Ampex Operating Level") of the rms value of the Remanence Fluxivity (Column 7); this is 20 log (rms value of Remanence Fluxivity) / 180).

3. My own arbitrary designation, in lieu of any standard. A standard designation would be useful to tape users, in order for them more easily to determine which tapes are similar in respect to maximum output level.

4. Ampex 705 and 3M 8206 are special-purpose tapes with a thin coating, for slow-speed "logging" applications. They are not mastering tapes, but are included here for general information.

5. 3M 206, lot MT82472, is the IEC Std 94-5 Primary Reference Tape for Professional Applications at 380- and 760-mm/s (15- and 30-in/s) tape speeds. This reference tape is available from MRL, now that 3M has left the professional audio tape market.

6. 3M 986 was originally called 966.

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