(02) 06/05

Fe Plus 120

The Fe Plus range has been formulated in order to meet the high quality demands in high speed duplication and for blank loading as well.
Fe Plus 120 provides a playing time of up to 120 minutes in cassette, making it the ideal tape for all kinds of

- music and voice recording
  for up to 2 hours program duration – and for

- blank loading of C-120s.

The tapes continue to uphold our manufacturing tradition of combining good quality performance and consistency.

Audio Duplication

RMG International

Technical Data Ferro Plus 120

(02) 06/05

1 Test Conditions

					see reference
Environmental conditions			20 ± 5 °C, 60 ± 15% r.h		
Tape speed			4,76 cm/s		1.1
Recording head	IEC Reference Head	Gap length	4,0 µm		
Playback head		Track width	0,6 mm		
Calibration tape	According to IEC Publication 94, part 2		120 + 3180 µs		1.2
Reference level			250 nWb/m		1.3
Reference tape			Batch R 723 DG (BASF)		
Bias definition	IEC I reference bias		0,0 dB = MOL = 4,3 dB		1.4
Bias setting	IEC I reference bias		0,0 dB	$\Delta S_{6,3}$ 6,0 dB	1.5
	Recommended bias		-3,0 dB	$\Delta S_{6,3}$ 1,5 dB	

2 Recording Performance Specifications

The table below presents the main parameters both in the IEC-I and the recommended bias settings.

Bias setting		**0,0 dB**		**- 3,0 dB**	
MOL_{315}	Maximum output level at 315 Hz	+2,0 dB		+2,0 dB	2.1
SOL_{10k}	Saturation output level at 10 kHz	- 6,5 dB		- 2,0 dB	2.2
S_{315}	Relative tape sensitivity at 315 Hz	- 1,5 dB		- 0,5 dB	
	Max. deviations from batch to batch		± 0.5 dB		
$S_{3,15k}$	Relative tape sensitivity at 3,15 kHz	- 0,5 dB		0,0 dB	
$S_{6,3k}$	Relative tape sensitivity at 6.3 kHz	0,0 dB		0,6 dB	2.3
S_{10k}	Relative tape sensitivity at 10 kHz	0,0 dB		0,8 dB	
	Max. deviations from batch to batch		± 1,0 dB		
S_{14k}	Relative tape sensitivity at 14 kHz	0,0 dB		1,0 dB	
THD_{250}	Third harmonic distortion ratio at 250 nWb/m	2,0 %		3,0 %	2.4
BN_{IEC}	Bias noise level (A-curve, RMS)		- 55,0 dB		2.5
MOL_{315} / BN_{IEC}	Signal to bias noise ratio at 315 Hz		57,0 dB		2.6
SOL_{10k} / BN_{IEC}	Signal to bias noise ratio at 10 kHz	48,5 dB		53,0 dB	2.7
P	Print through		56,0 dB		2.8

3 Magnetic Properties

H_c	Coercivity	30 kA/m	380 Oe	3.1
B_{RS}	Saturation retentivity	165 mT	1650 G	3.2
Φ_{RS}	Remanent saturation flux	500 nWb/m	50 mM/mm	3.3

4 Physical Properties

Base material	Polyester	
Tape width	3.81 mm	
Tolerances of tape width	+0,00 / -0,05 mm	
Coating thickness	3,8 µm	4.1
Total thickness	9,6 µm	
Yield strength (F3)	≥3,7 N	4.2
Breaking strength	≥8,0 N	4.3
Electrical resistance of magnetic coating	≤ 4 GΩ	

All data represent nominal values and are subject of change without prior notice due to technical progress

5 References

1.1 Measurement method according to IEC 94, using the IEC Reference Heads.

1.2 Playback equalization on the tape testing equipment is aligned to provide a flat frequency response of the output voltage when playing back the frequency response section of the IEC I Calibration Tape 4,76 cm/s, time constants 120+3180 µs.

1.3 The reference level 250nWb/m corresponds to the reference level section of the IEC I Calibration Tape.

1.4 IEC I reference bias definition: Using the IEC Reference Heads and the IEC I Reference Tape, the reference bias is defined as that bias, at which the maximum output level at 315 Hz and 3 % third harmonic distortion (MOL_{315}) equals 4,3 dB relative to reference level (Ref. 1.3).

1.5 Bias setting by means of a recommended sensitivity drop is common practice. Setting the recording level to about 20 dB below reference level (using a signal frequency of 6,3 kHz) the bias current is raised to such an extent that the playback level is reduced to the given value relative to maximum sensitivity.

2.1 MOL_{315}: Maximum output level at 315 Hz relative to reference level (Ref. 1.3), characterized by a third harmonic distortion of 3 %.

2.2 SOL_{10k}: Output level at 10 kHz, at which saturation occurs, relative to reference level (Ref. 1.3).

2.3 S_{315}, $S_{3,15k}$, $S_{6,3k}$, S_{10k}, S_{14k}: Relative tape sensitivities are compared to those of the reference tape. All sensitivities are measured with an audio current, which at 315 Hz produces an output of about 20 dB below reference level (Ref. 1.3).

2.4 THD_{250}: Third harmonic distortion ratio of a 315 Hz signal at reference level (Ref. 1.3).

2.5 BN_{IEC}: The bias noise level is measured after operational erasure and biasing have been applied. Measurement of BN_{IEC} is made using an RMS meter and a weighting network according to curve "A" of IEC Publication 651.

2.6 MOL_{315} / BN_{IEC}: The signal to bias noise ratio results from the addition of the maximum output level at 315 Hz (Ref. 2.1) and the bias noise level BN_{IEC} (Ref. 2.5).

2.7 SOL_{10k} / BN_{IEC}: The signal to bias noise ratio results from the addition of the saturation output level at 10 kHz (Ref. 2.2) and the bias noise level (Ref. 2.5).

2.8 P: Print through is the highest signal level transferred from a reference level recording to an adjacent tape layer after 24 h storage at $20^{O}C$.

3.1 H_C: Coercivity is that strength of a magnetic field under whose influence the magnetization of a tape is reduced to zero after the sample has been magnetised to saturation.

3.2 B_{RS}: Saturation retentivity specifies the remanent magnetic flux, after the tape has been subjected to saturation magnetisation.

3.3 $Ø_{RS}$: Remanent saturation flux is the retentivity multiplied by the coating thickness.

4.1 Thickness: Values given are mean values.

4.2 Yield strength (F3) is defined according to IEC Publication 735 as that force which is necessary to stretch the tape by 3 %.

4.3 Breaking tensile strength is the force to get the breaking point of a tape sample, according to IEC Publication 735.

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