Experimental Digital Video Recording Using Co-Cr-Ta/Ni-Fe Double-layered Tape (NHK)

1. Structure and characteristics of the Co-Cr-Ta/Ni-Fe tape

Deposition conditions of Co-Cr-Ta/Ni-Fe film

Composition	
Co-Cr-Ta	Co _{79.5} Cr ₁₈ Ta _{2.5} at. %
Ni-Fe	Ni ₈₀ Fe ₂₀ at. %
Sputtering gas	Kr
Gas pressure	1mTorr
Temperature of base film	135 °C

Magnetic properties of Co-Cr-Ta film

Ms	460	emu/cc
Hc_⊥	1250	Oe

Structure of Tape

Magnetization Loops of the Co-Cr-Ta/NiFe Film

2. Read/Write characteristics of the Co-Cr-Ta/Ni-Fe tape

Reproduced signal spectrum and instrument noise spectrum

Reproduced wave form after phase equalization

Specifications of the experimental VCR

Drum diameter	40 mm
Drum rotation speed	90 rps(5400rpm)
Relative tape-to-head velocity	11.4 m/s
Total recording bit rate	126 Mbps
Maximum recording frequency	27.7 MHz
Number of recording channels	2
Channel coding	8-14 modulation
Number of tracks per field	6
Shortest recording bit length	0.18 μm
Head type	Ring
Head track width	5 μm

Read/Write characteristics

CN ratio (RBW=100kHz)	42.5 dB(rms/rms)
Byte error rate	1 x 10⁻⁵

Eye pattern of reproduced signal