



DIR-2000, 1 Gbit/sec Data Recorder For VERA Project

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Storage by Sony

Specifications and Parameters (1)

	DIR-1000H	DIR- 2000
Format	ANSI ID-1	New Format ID-1 Read Compatible
User Data Rates	512 , 400, 256, Mbps	1024 , 512, 256 Mbps
Storage Capacity (L)	100 GByte	600 GByte
Recording Time	25 min at 512 Mbps	80 min at 1024 Mbps
Media	Co-oxide	New Metal Particle
Tape Width	19 mm	19 mm
Bit Error Rate	1 x 10E-10	
Data Assurance	Read after Write for Data and CTL	

Storage by Sony

Specifications and Parameters (2)

	DIR-1000H	DIR- 2000
Format	ANSI ID-1	New Format ID-1 Read Compatible
Tape Thickness	16 μm	11 μm
Media Coercive Force (Hc)	900 Oe	2300 Oe
Shortest Wavelength	0.89 μm	0.45 μm
Track Pitch	45 μm	19 μm
Maximum Tape Speed	847.5 mm/sec	356.6 mm/sec
Recording Bit/Head	88 Mbps	88 Mbps
Record / Playback Heads	16 heads/16 heads	32 heads/32 heads
Processor Channels	8 channels	16 channels
Maximum Writing Speed	39.5 meter/sec	19.7 meter/sec
Scanner Rotation Speed	110 rps at 512 Mbps	55 rps at 1024 Mbps

Input / Output Signal (Connector)

	DIR-1000H	DIR- 2000
Data Input/Output	8/16 line pairs for data (ECL, NRZ) w/ clock, sync, parity	32 line pairs for data (ECL, NRZ) w/clock, sync, parity
Reference Input	Clock, sync, (ECL)	
Annotation Input/Output	+4dbm 600Ω balanced	
Auxiliary Data Input/Output	RS-422 interface	
Remote 1/2	RS-232C interface	
Remote 3	IEEE-488 (GPIB) interface	
Remote 4/5	RS-422/485C interface	

Storage by Sony

General Specifications

	DIR-1000H	DIR- 2000
Power Requirement	100 V to 240 V AC±10% (50/60 Hz)	
Power Consumption	800 VA	850 VA
Operating Temperature	15°C to 35°C (50°F to 95°F)	
Operating Humidity	20% to 80% (non-condensing)	
Weight	64 Kg (141 lb 2oz)	65 Kg (143 lb 6oz)
Dimensions (W x H x D)	436 x 433 x 634 mm (17 1/4 x 17 1/8 x 25 1/8 inches)	

Storage by Sony

Sony DIR-2000

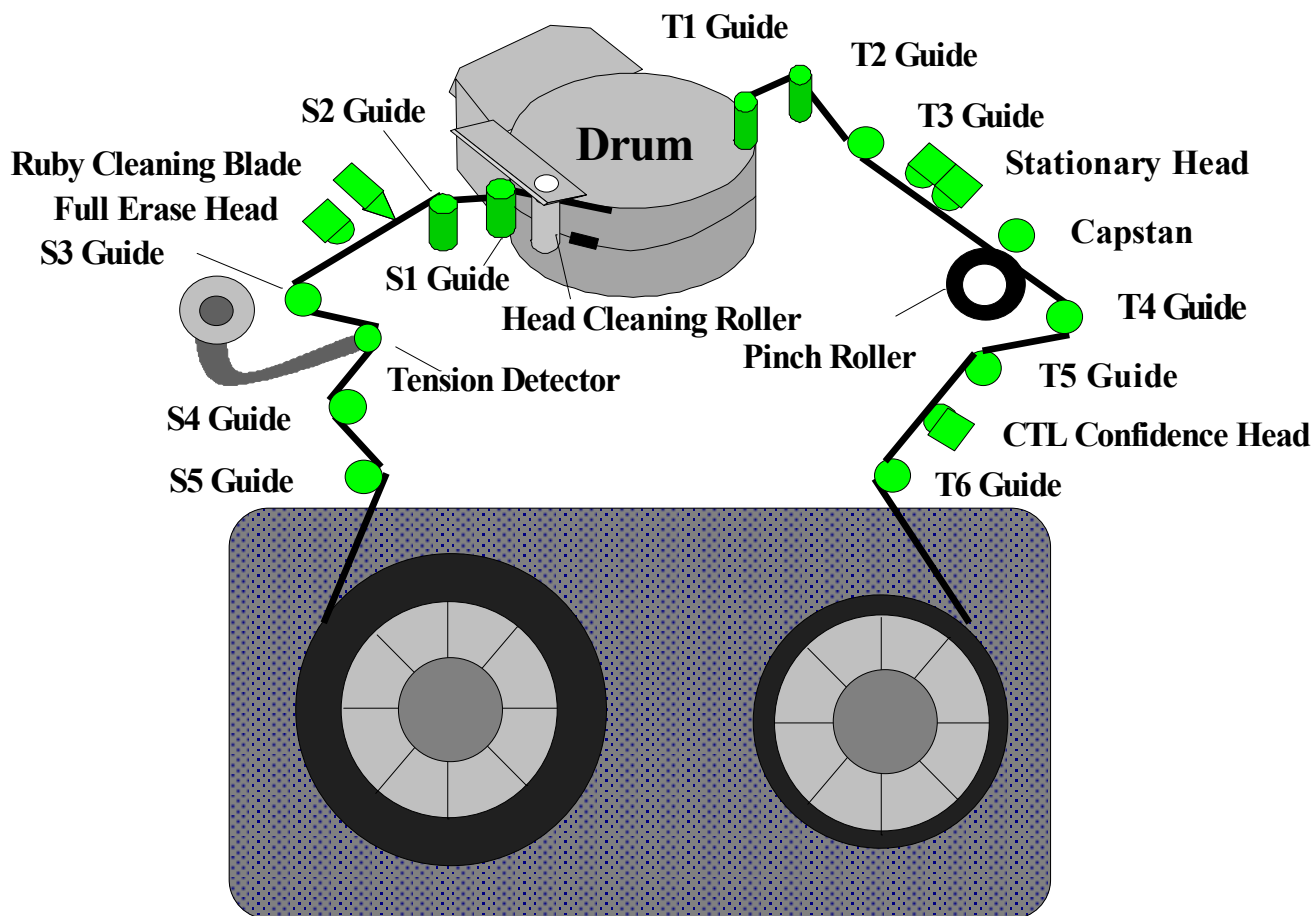


(The same form factor as DIR-1000 Series)

Preliminary

Storage by Sony

Tape Transport



Head Wheel



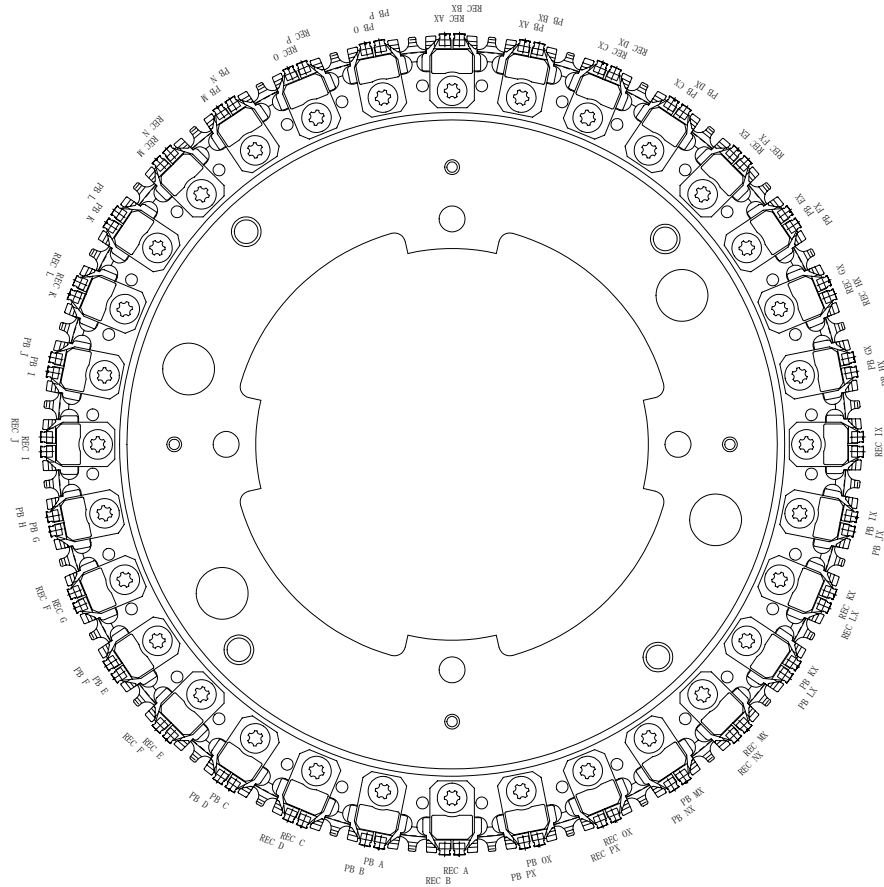
Storage by Sony

DRUM

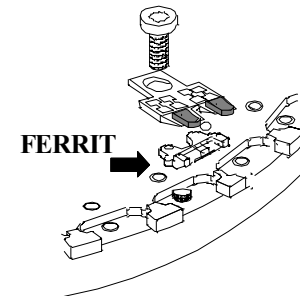


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Head Configuration

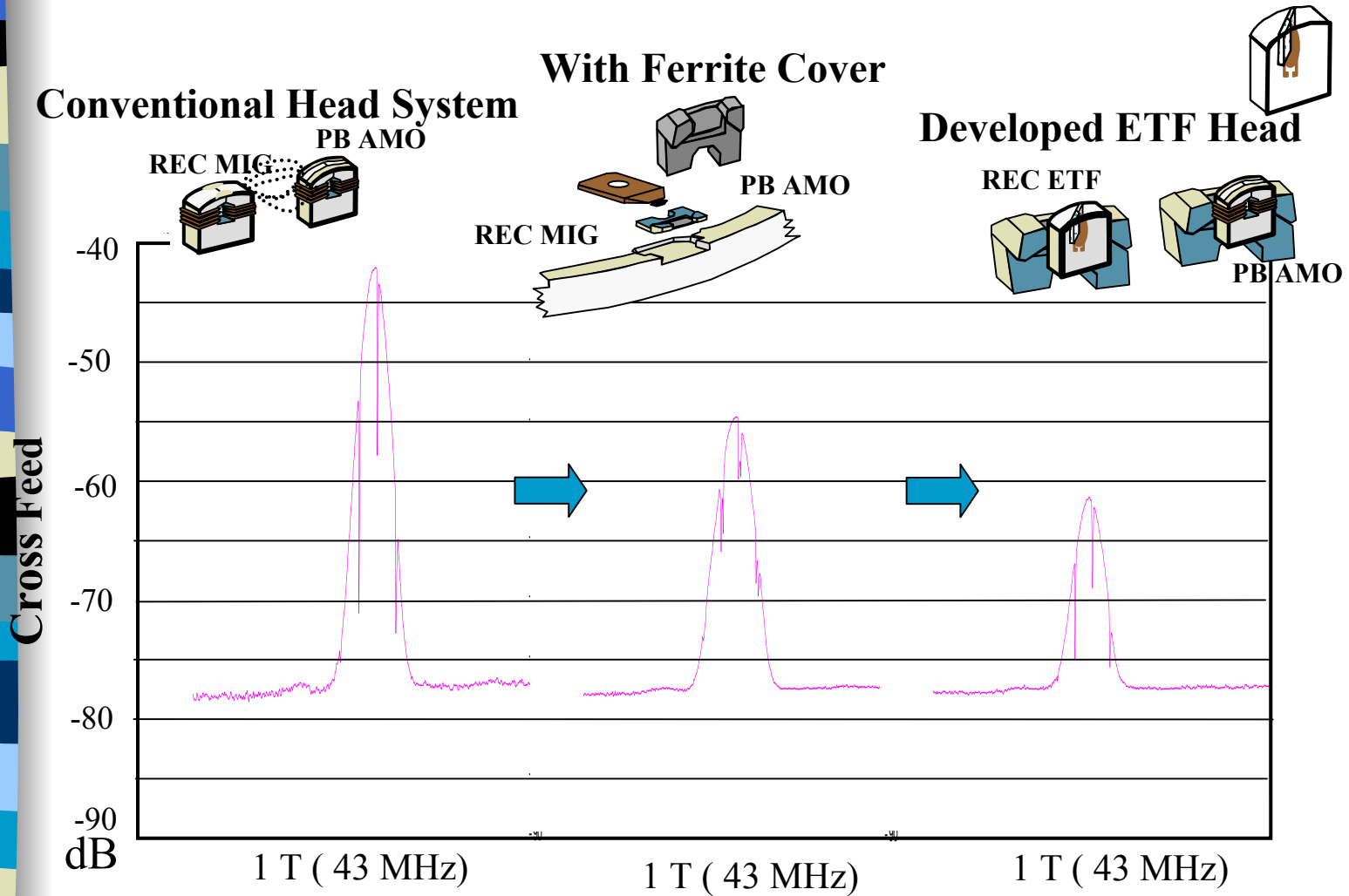


2 chips / base
Rec Head n=32
PB Head n=32



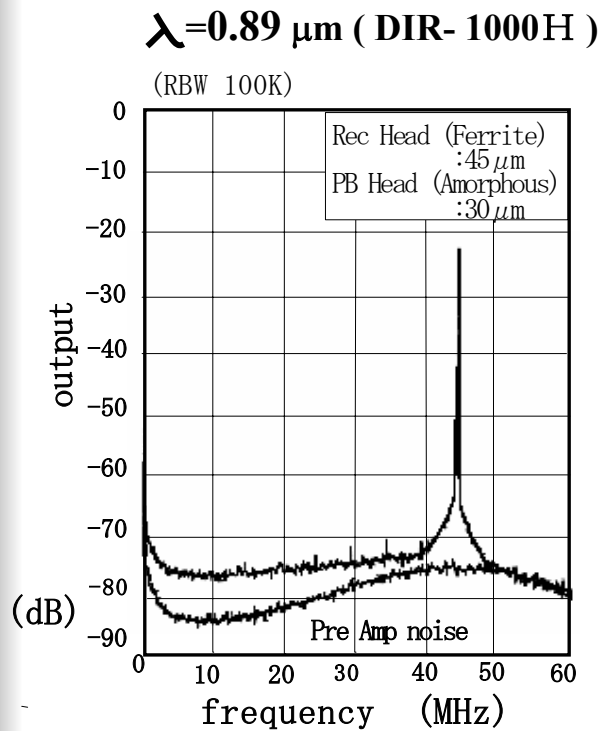
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Cross Feed during Read while Write

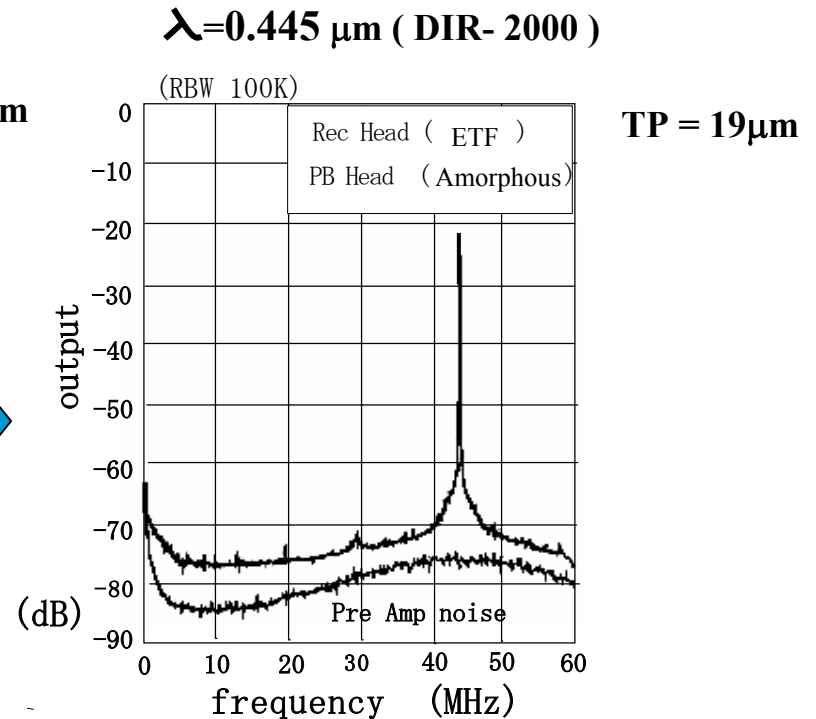


Noise Performance of New Metal tape

- Recording of shortest wavelength,
- Narrow track pitch



TP = $45 \mu\text{m}$



TP = $19 \mu\text{m}$

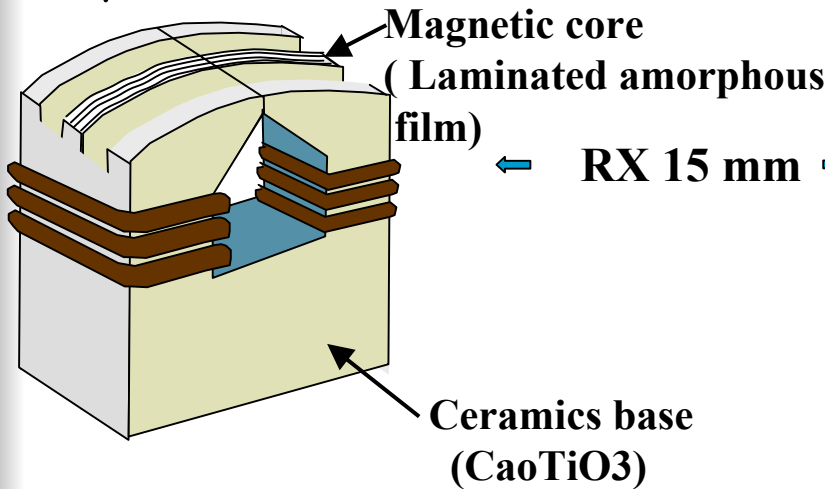
Trench Head New Design Head

DIR-2000

Playback Head

(Laminated Amorphous)

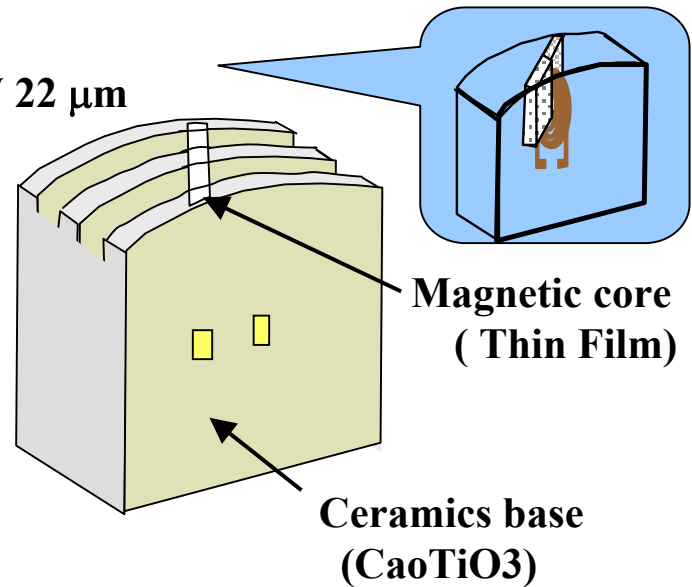
TW 30 μ m



Record Head

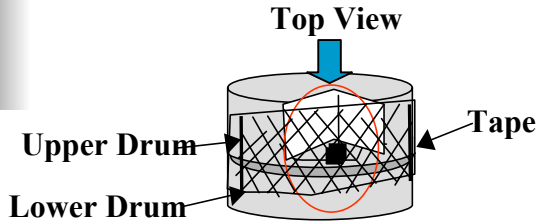
(ETF , Embedded Thin Film)

TW 22 μ m



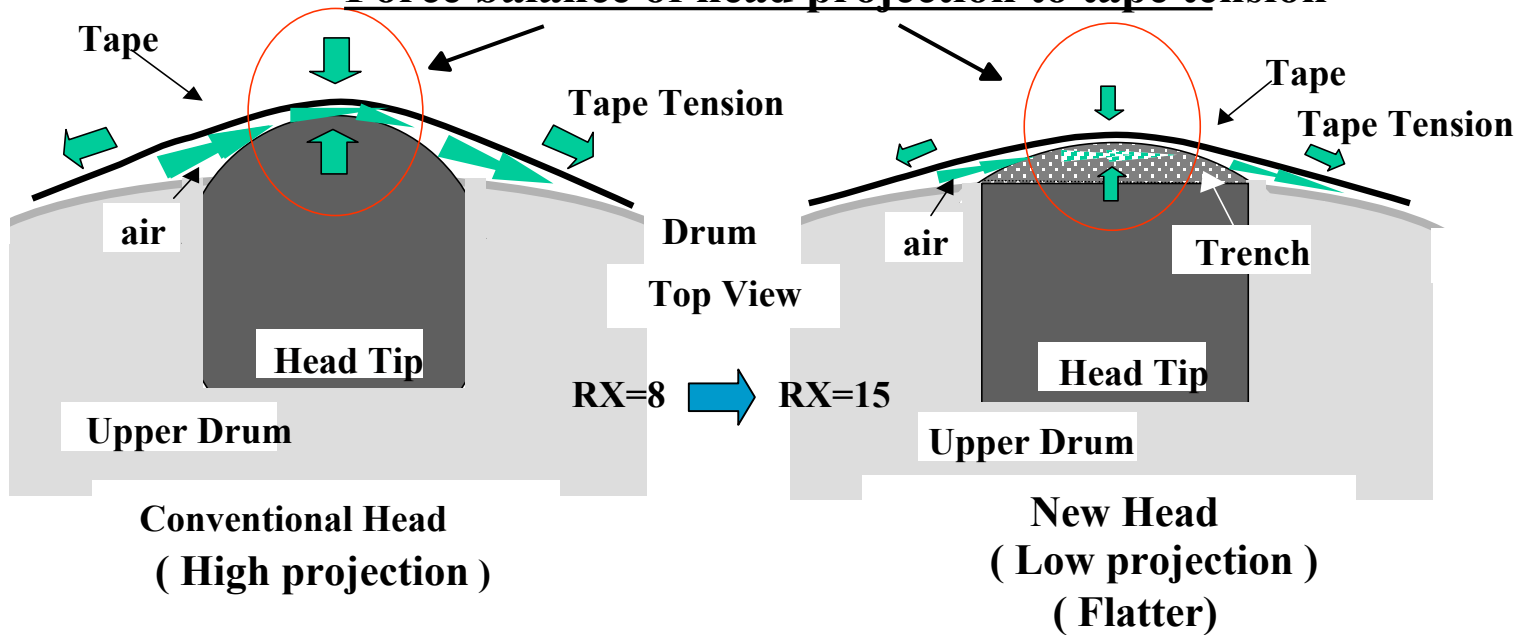
Storage by Sony

Effect of Trench Head (1)



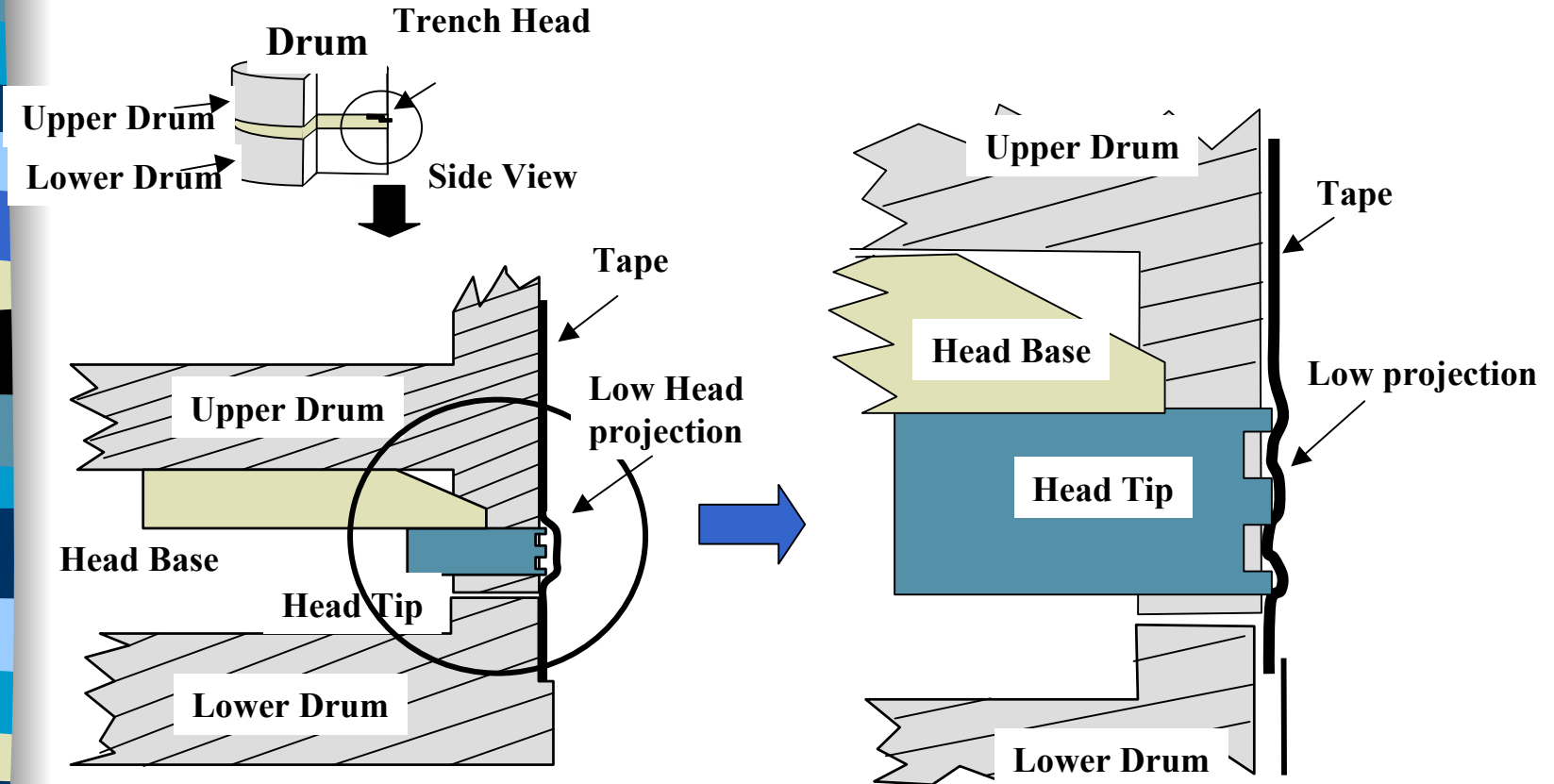
Spacing of Head to Tape

Force balance of head projection to tape tension

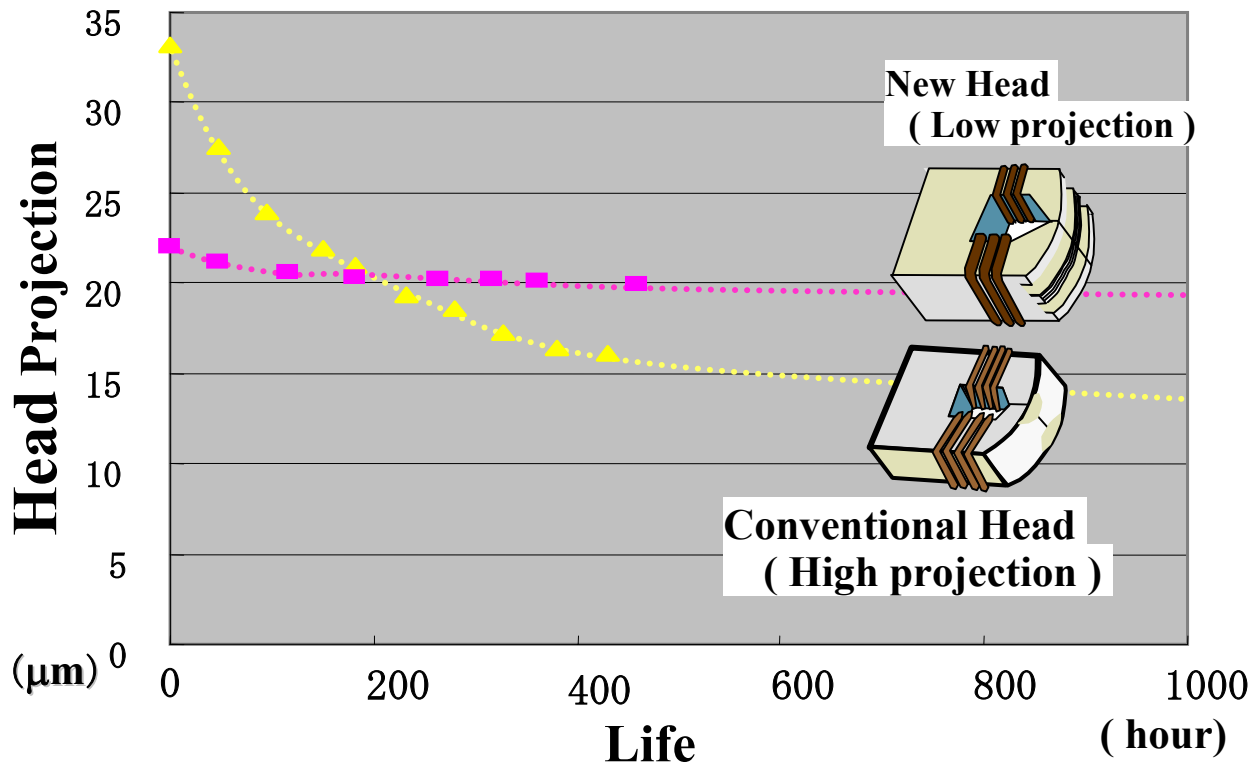


Effect of Trench Head (2)

- Decrease of spacing loss



Head Life

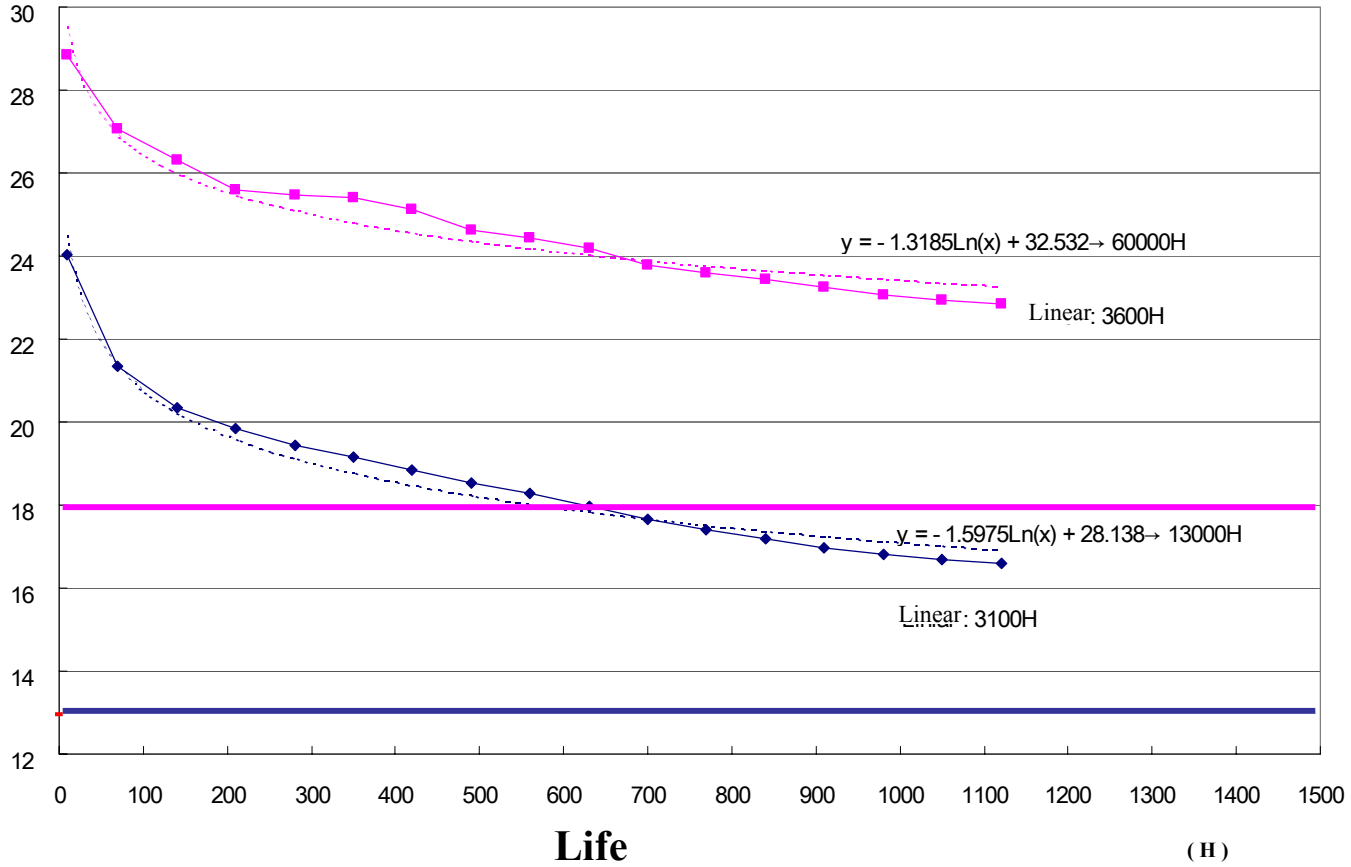


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Head Life

Head Projection

(mm)



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VERA



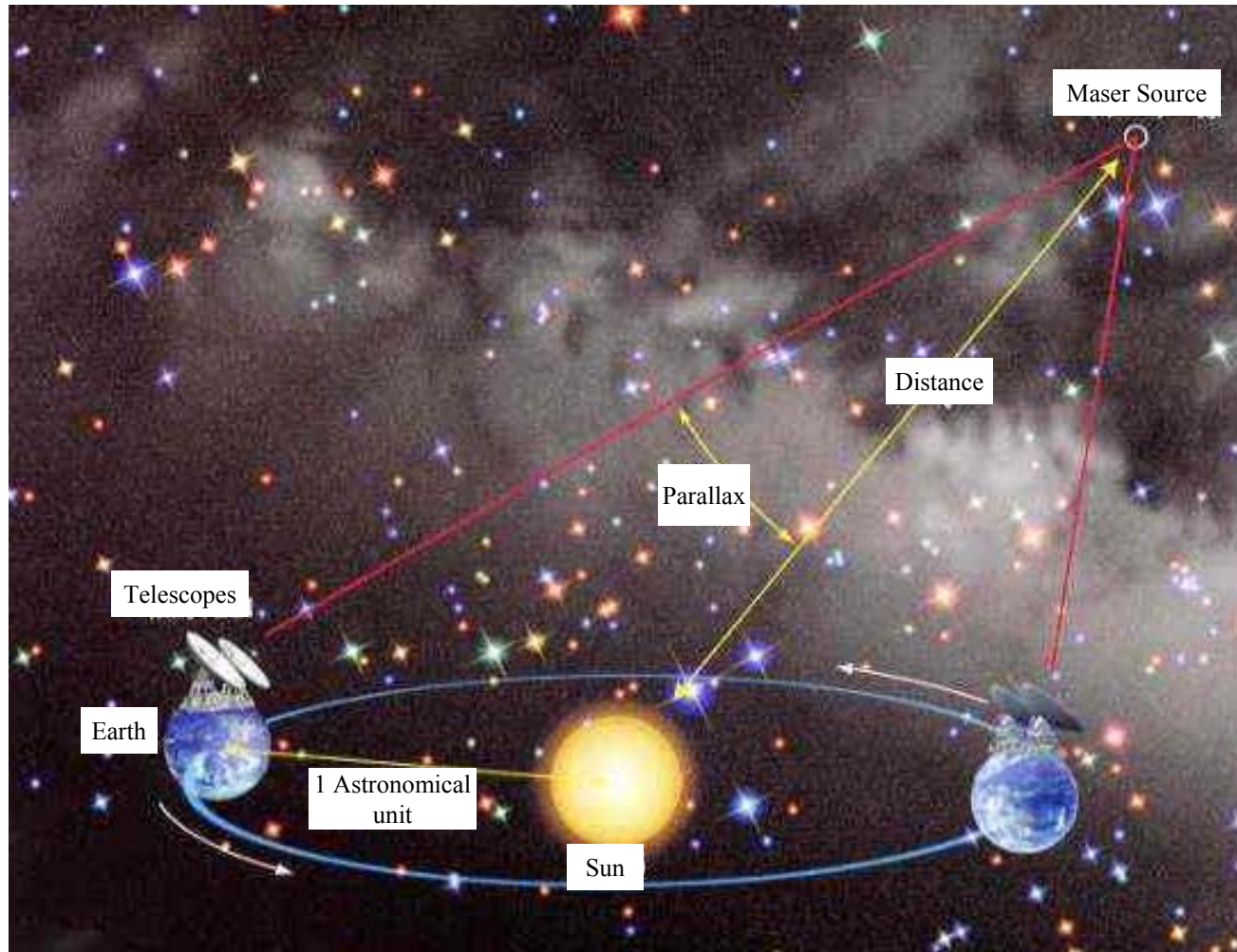
我々の銀河系(想像図)

VERA VLBI Exploration of Radio Astrometry

National Astronomical Observatory

Storage by
Sony

Schematic viewing of parallax observation with VERA



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Locations of Four VERA Observatories



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VERA

Structure of VERA Station

