

*C-Band R&D at KEK
for
 e^+e^- Linear Collider*

**T. Shintake, H. Matsumoto and N. Akasaka...
&
C-band R&D Group**

Why do we use C-band?

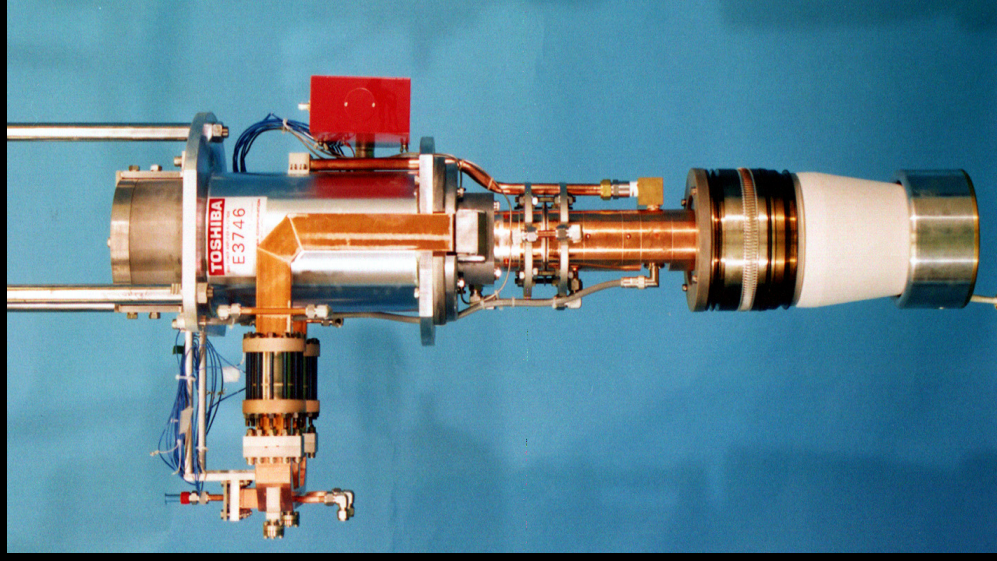
- **Klystron Voltage** **350 kV**OK
 $\lambda \sim 53$ mm --> Drift-tube 15 mm
--> 1.5 μ P
--> 350 kV, 320 A
- **Modulator HV-Pulse Length** **3.5 μ sec**OK
Filling time : tF \sim 250 nsec ($\sim f^{-1.5}$)
RF pulse length : tRF \sim 2.5 μ sec
Pulse Compression factor 5
- **Acc. Structure Straightness** **Bend 50 μ m**.....OK
Transverse wake-function dWt/ds $\sim f^{3.5}$

C-band Klystron Development

Accumulated operating time is 4,500 hours since April in 1998

TOSHIBA E3746 No.2

53 MW, 2.5 μ sec

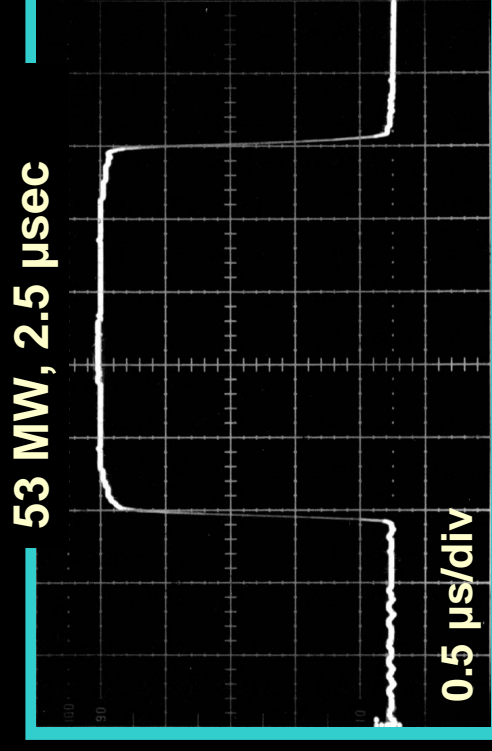
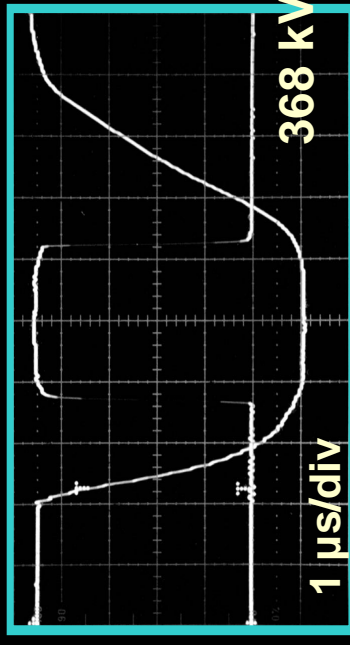


Traveling-wave
output structure

Solenoid
Focus (4.6kW)

1.5 μ P

Dispenser
Cathode
(D74.5mm,6.3A/cm²)



53 MW, 2.5 μ sec, 50 pps, 44%

C-band Smart Modulator No. 1



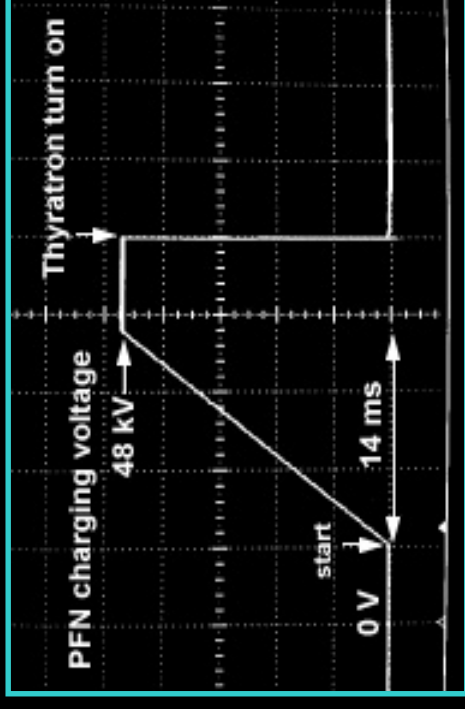
Inverter power supply EMI-303

Peak power output: 111 MW

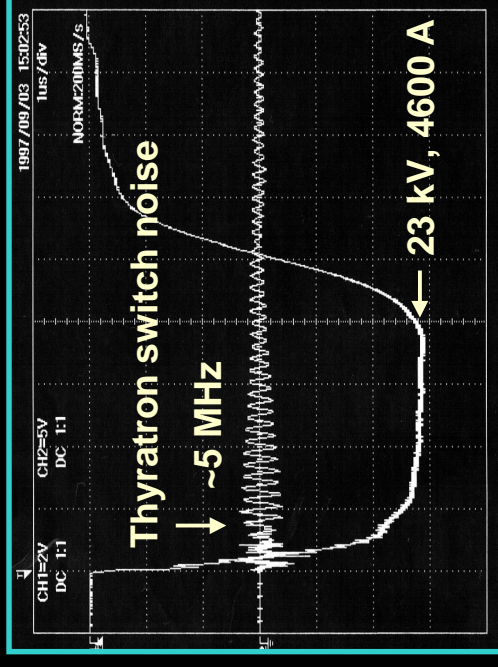
Average power output: 39 kW

Charging voltage: 47 kV

Flat top pulse width: 2.5 μ sec



Charging voltage of EMI-303



PFN output voltage