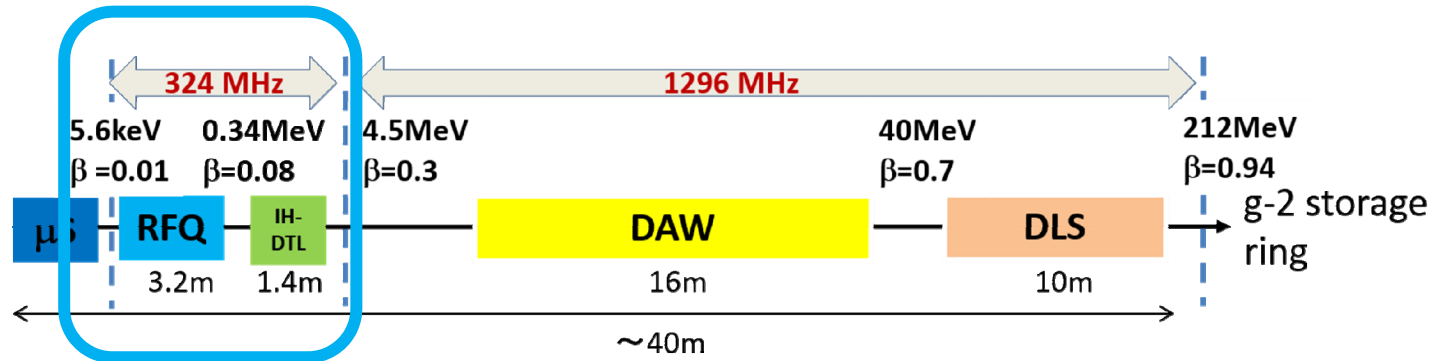


Low power measurement of a 1300-MHz RFQ cold model

Y. Kondo JAEA

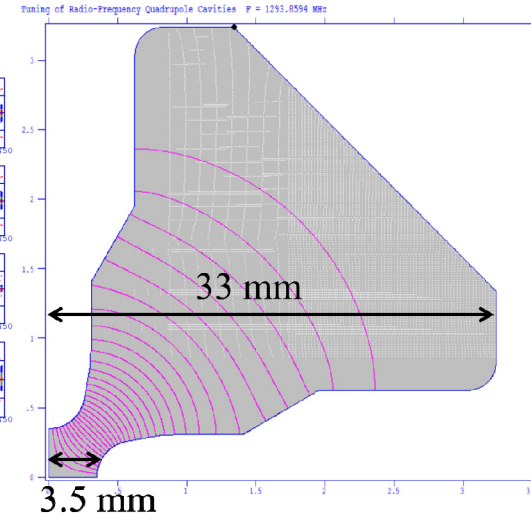
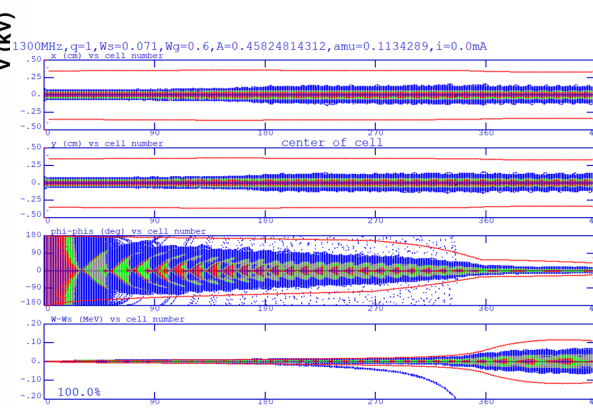
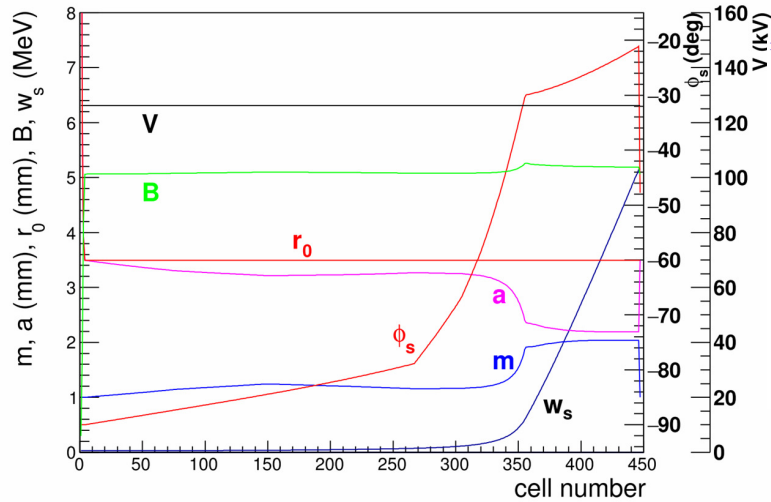
Alternative for g-2 muon linac low- β section



- World's first muon LINAC for g-2 experiment at J-PARC.
- Replace 324-MHz RFQ and IH-DTL by a 1300-MHz RFQ.

Frequency	1296 MHz
Injection energy	30 keV
Extraction energy	5.2 MeV
Peak intensity	1×10^6
Transverse emittance	$< 0.25 \pi$ mm mrad
RF duty factor	0.05%

Beam dynamics design

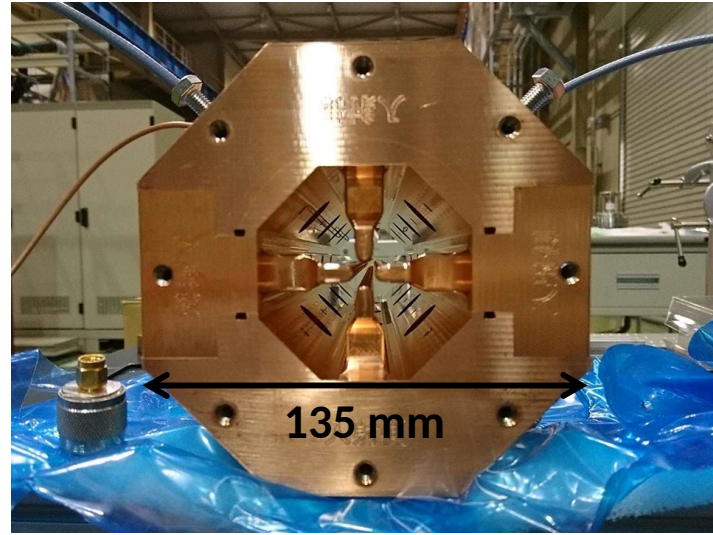
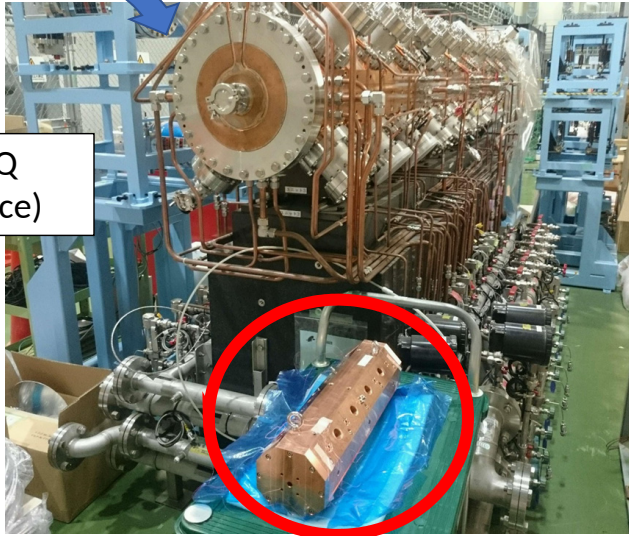


Vane length	3.7 m
Number of the cells	448
Max. surface field	53 MV/m (1.65 E_k)
r_0	3.5 mm
Power dissipation	3 MW

- Beam dynamics design and particle simulation were done with RFQGEN

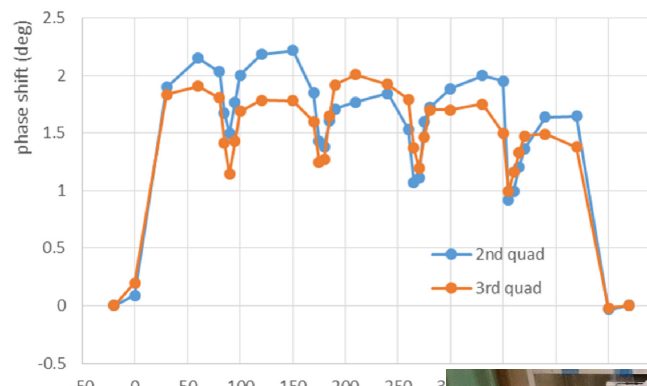
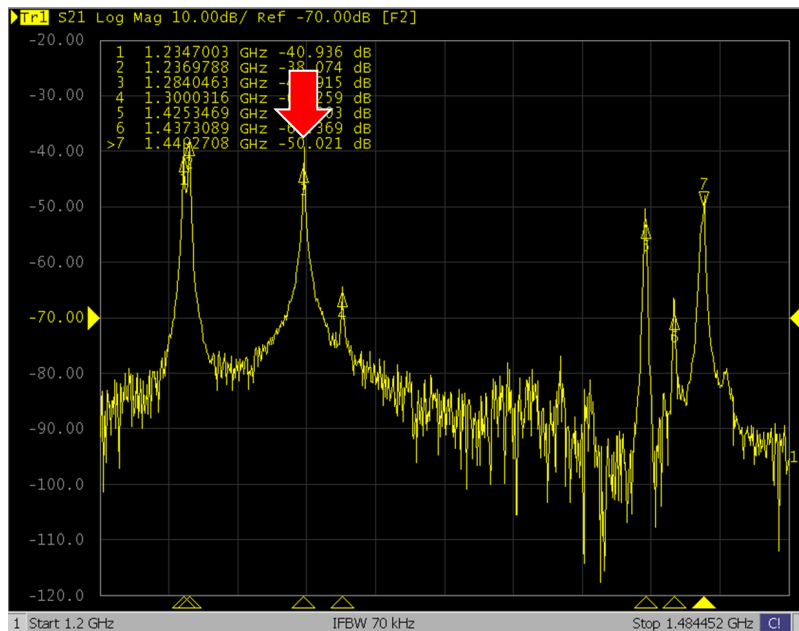
Cold model

324-MHz RFQ
(size reference)

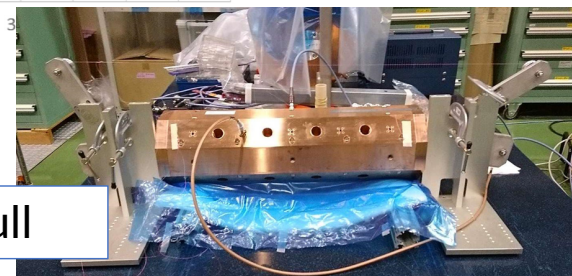


- 450 mm cold model made of oxygen free copper
- Equipped 4 tuners and 5 pickup ports / quadrant
- Machining accuracy $\pm 15 \mu\text{m}$ (except for major 1).

Low level measurement



Preliminary bead-pull



- TE₂₁₀ mode was observed at 1284 MHz (without tuners)

Summary

- An 1300-MHz RFQ is proposed as an alternative of the muon linac low-beta section and a cold model was fabricated.
- TE210 mode was successfully observed at 1284 MHz and preliminary bead measurement was conducted.
- **Please visit THPO048!**

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