



SSPA for Multiarmonic Buncher

ISOLDE

Four-harmonic buncher for radioactive and stable beams switching at the ATLAS facility

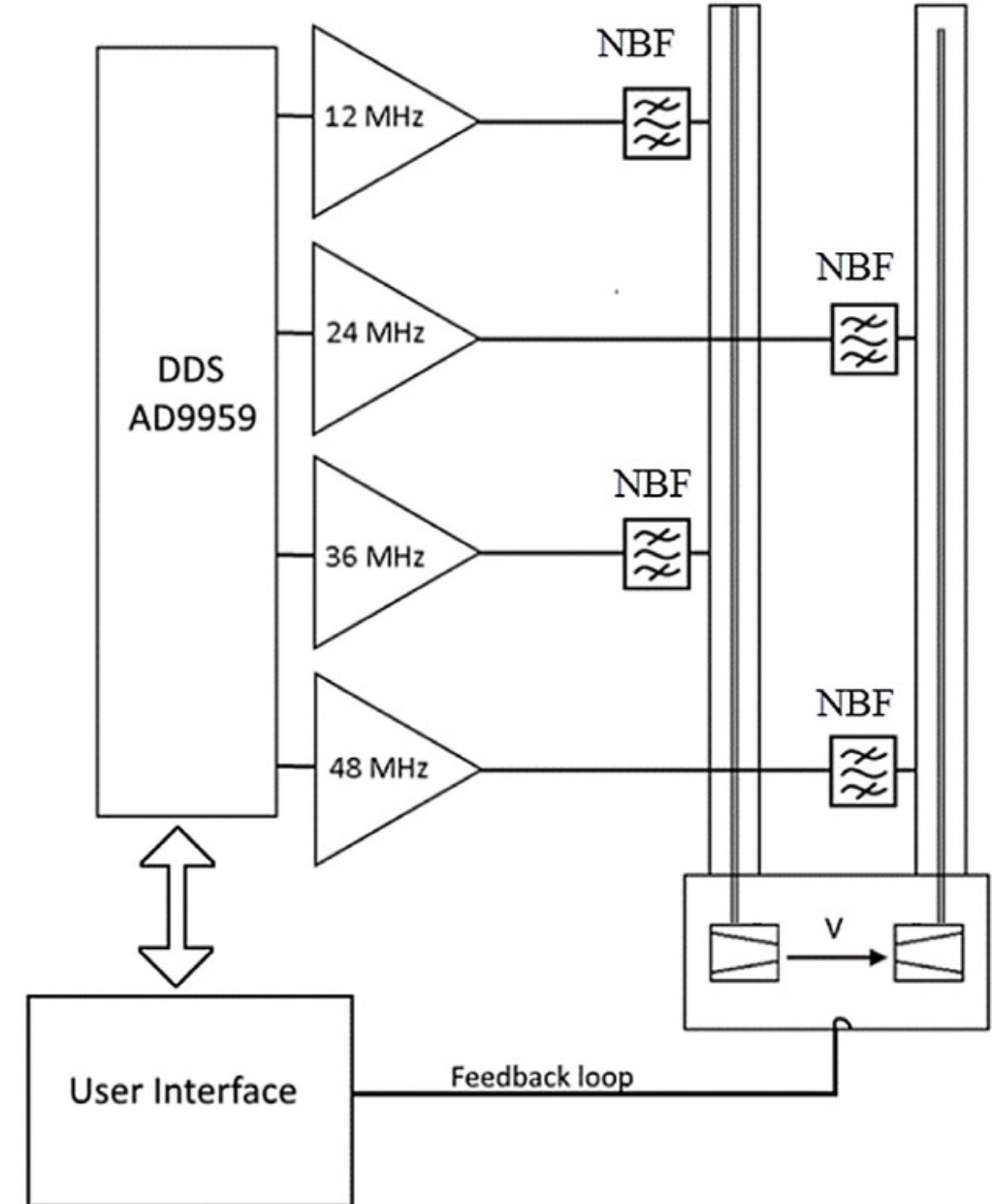
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The electrode voltage amplitude is a result of a proper combination of the four input RF signals amplitudes and phases

An external waveform generator will tweak the low-level RF (LLRF) signals with calibrated voltage sequences according to the needed saw-tooth voltage amplitude.

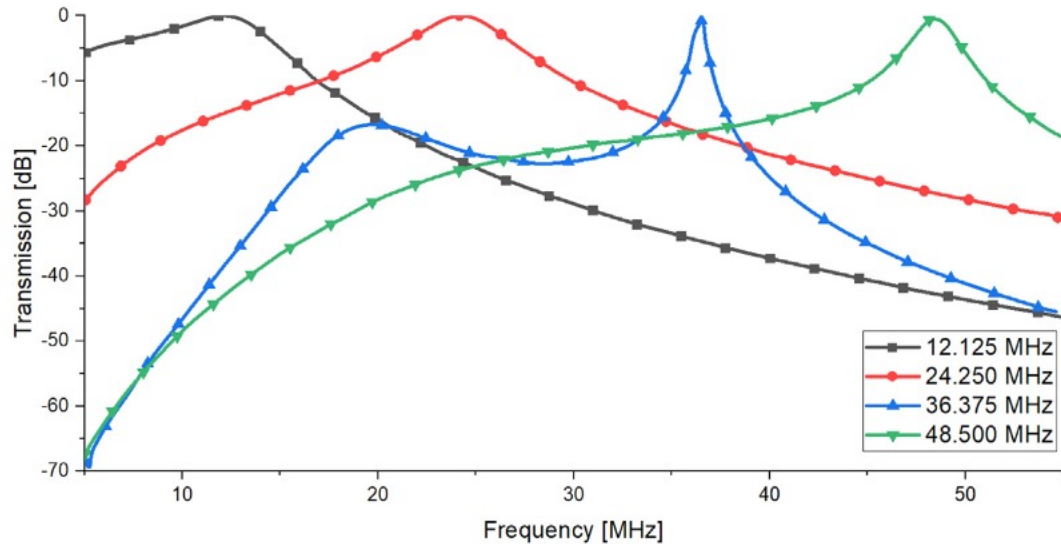
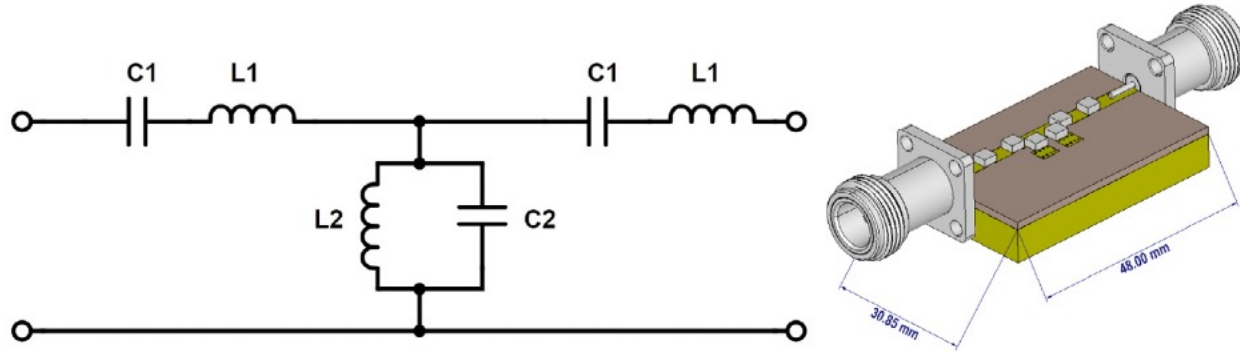


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The amplitude and phase control of each amplifier needed for each beam regime will be set through DDS. The feedback signal that measures the electrodes voltage will be used for further stability improvement and monitoring

To minimize cross-talking and increase isolation between the feeding ports of the MHB, four narrow-band filters (NBF) were designed

SAWTOOTH WAVE GENERATION FOR PRE-BUNCHER CAVITY IN ISAC

K. Fong, M. Lavery, S. Fang and W. Uzat
TRIUMF 4004 Wesbrook Mall, Vancouver, B.C., Canada V6T 2A3

This cavity is driven by a 600 Vp-p sawtooth waveform at 11.667 MHz.

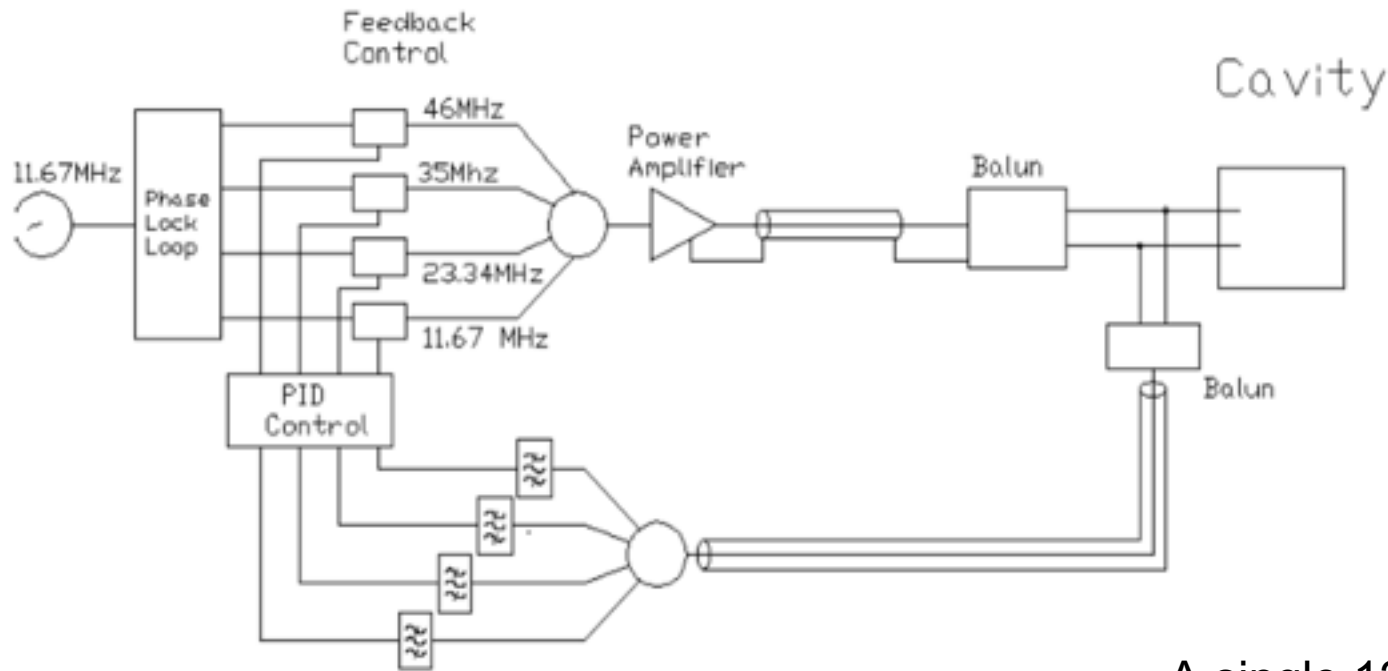


Figure 1. Block diagram of sawtooth wave generator

The sawtooth waveform is synthesized by summing the fundamental to 4th harmonics Fourier components.

A single 125 W MOSFET rf power amplifier is used to raise the combined signal to 220 Vp-p at 50 W.

The unbalanced-to-balanced transformation also allows the rf power to be fed effectively into a set of parallel plates inside the cavity.

Pickup probes at each plate monitor the waveform at the cavity which are obtained by a set of 4 bandpass filters.

The power amplifier is a 2 stage, transformer coupled wide band solid state amplifier. Each stage consists of a pair of MOSFETs operating class AB in push-pull mode.

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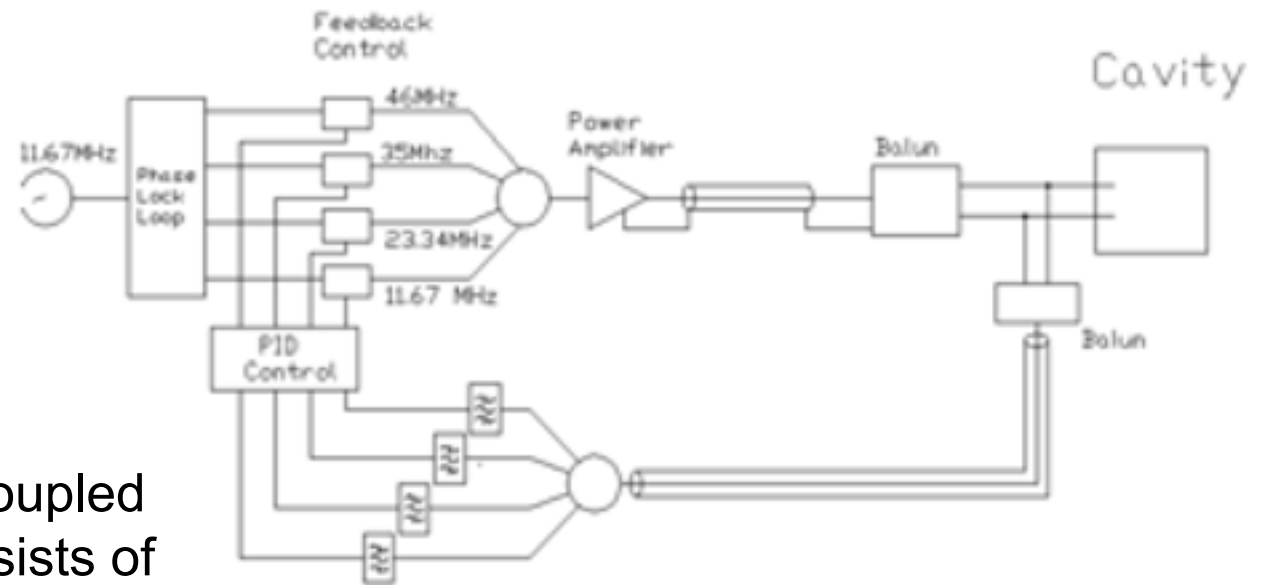


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**Design of a high-efficiency power amplifier
that amplifies a sawtooth waveform.
Study of the effect of the TTF for a sawtooth
waveform in the buncher.**

