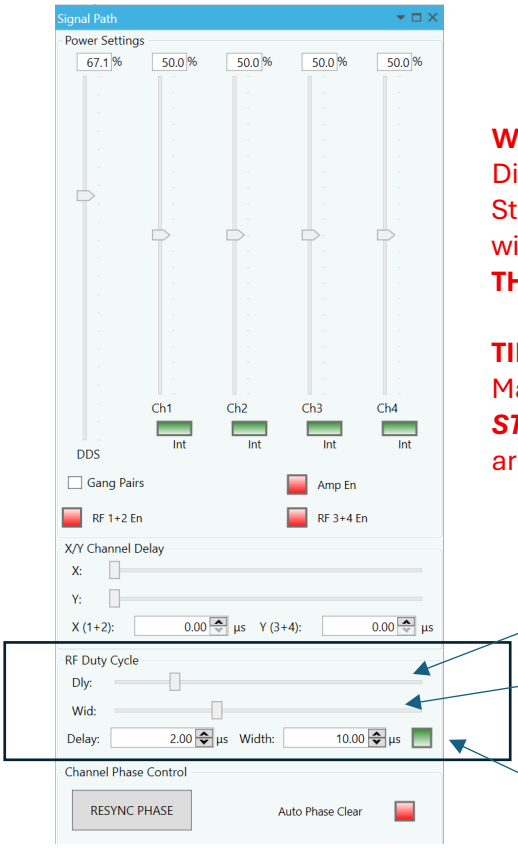
AN2623: RF Duty Cycle Mode (RF-DC)

A new Signal Path feature is available from SDK 2.0.9 and applies to Image mode use on the following Isomet Synthesizer model types:

	Model	Minimum firmware revision
•	iMS4-P	Synth FW v4.1.161
•	iCSA-	FW v1.1.30

When enabled, the RF Duty cycle settings define the duration of the RF output independently from the Image update clock period. The start of the output pulse can be delayed relative to the Image clock update



Limits:

- Minimum default values = 50nsec
- ***Dly*** + ***Width*** =< Clock period

WARNING
Disabling ***RF-DC*** during Image Play **or** after Image Stop **could result in CW RF output.** (The RF power will depend on the active Image point value in play)
THIS MAY DAMAGE A CONNECTED AO DEVICE

TIP:
Make the last image point = 0% AMPLITUDE and use ***STOP-GRACEFULLY.*** This will ensure the RF outputs are at zero.

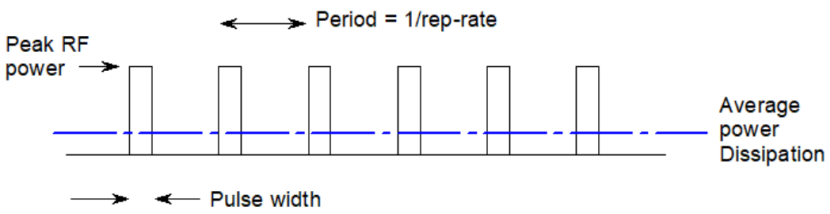
Output delay

Width

Enable RF-DC

Application

The main application is for use with pulsed laser systems particularly when it is desirable to reduce the average RF power dissipation. The pulse period and delay are adjustable to ensure the acoustic wave is optimally positioned in the AO crystal when the laser pulse is incident.

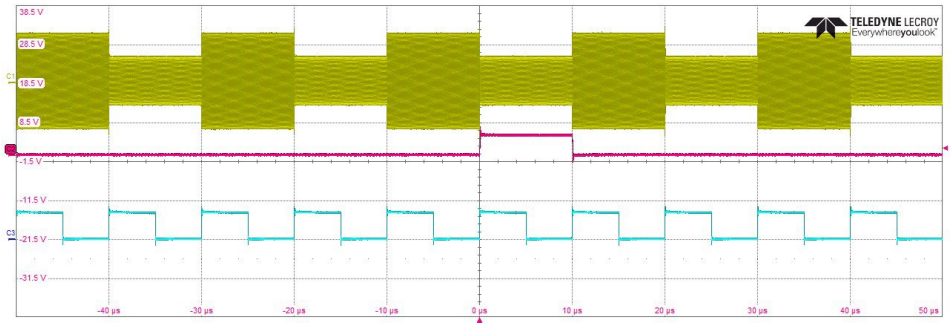


Example waveforms:

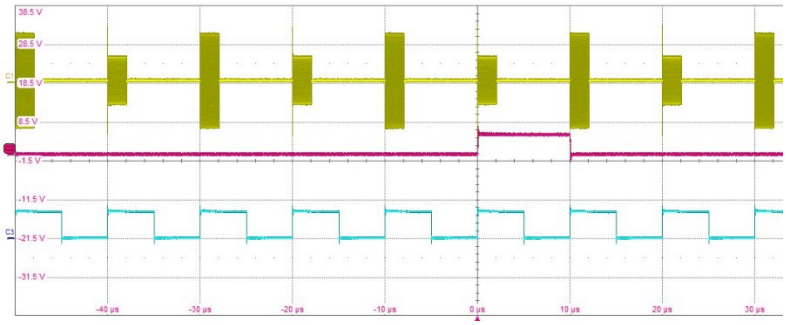
An image created for ease of illustration and comprises a series of Image points alternating in amplitude; 100% > 50% > 100% > 50% ....

Top trace (C1) = RF output
Middle trace (C2) = Sync IO output on J7
Lower trace (C3) = Image Clock

RF-DC not applied
Output waveforms for continuous Image mode output (no duty cycle of RF).



RF-DC enabled: 2usec pulse width, no delay



RF-DC enabled: 2usec pulse width, 4usec delay