Collimator tracking setup

- Primary
  - at 230 location
  - 10-mil tungsten
- Secondary collimator
  - Off except for the last two slides, where 50 turns were tracked for each particle.
- Tracked particles
  - Elliptical envelope of phase space.
  - Emittance of 3π and 18π
  - $\Delta p/p$ of 0 and 1.0%

Horizontal at 301 Secondary Collimator

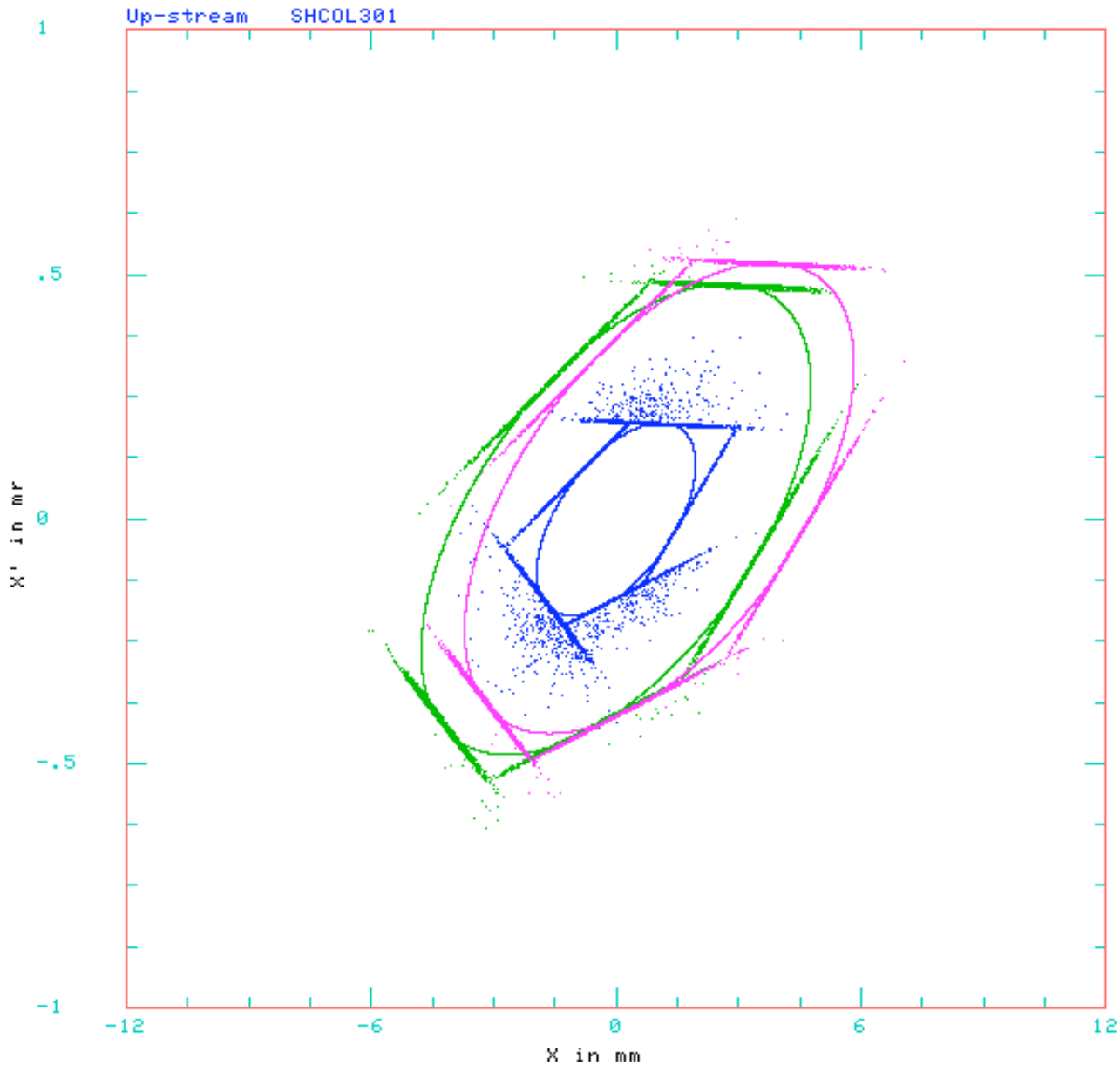
Turn#1

#2

#3

#4

#5



$\sigma_p/p = 0$

$\varepsilon_H = 3\pi,\ \Delta_p/p = 0$

$\varepsilon_H = 18\pi,\ \Delta_p/p = 0$

$\varepsilon_H = 18\pi,\ \Delta_p/p = 0.0$

Horizontal at 303 secondary collimator

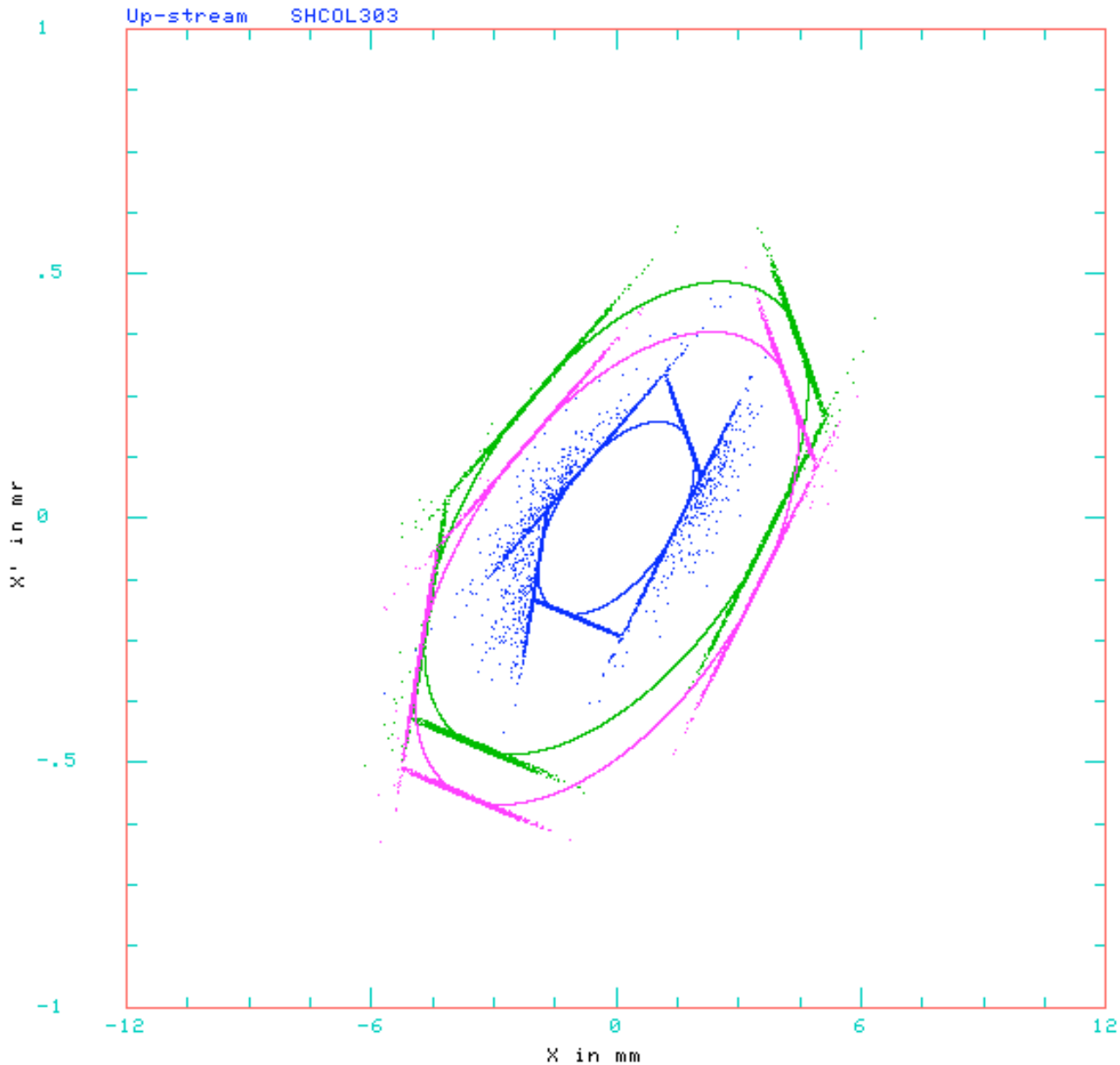
Turn#1

#2

#3

#4

#5



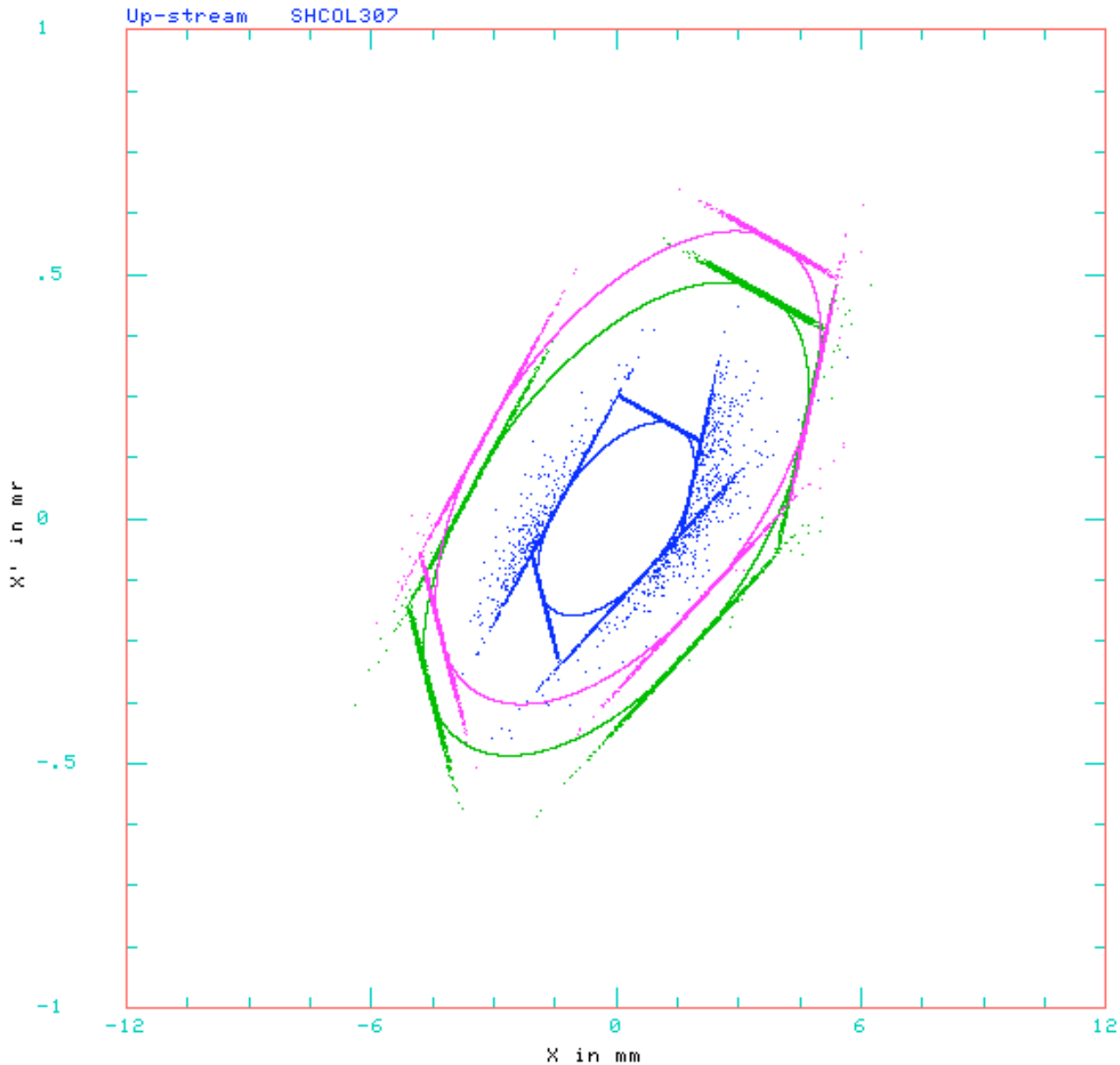
$\sigma_p/p = 0$

$\varepsilon_H = 3\pi,\ \Delta_p/p = 0$

$\varepsilon_H = 18\pi,\ \Delta_p/p = 0$

$\varepsilon_H = 18\pi,\ \Delta_p/p = 0.01$

Secondary collimator at 307, 5th turns



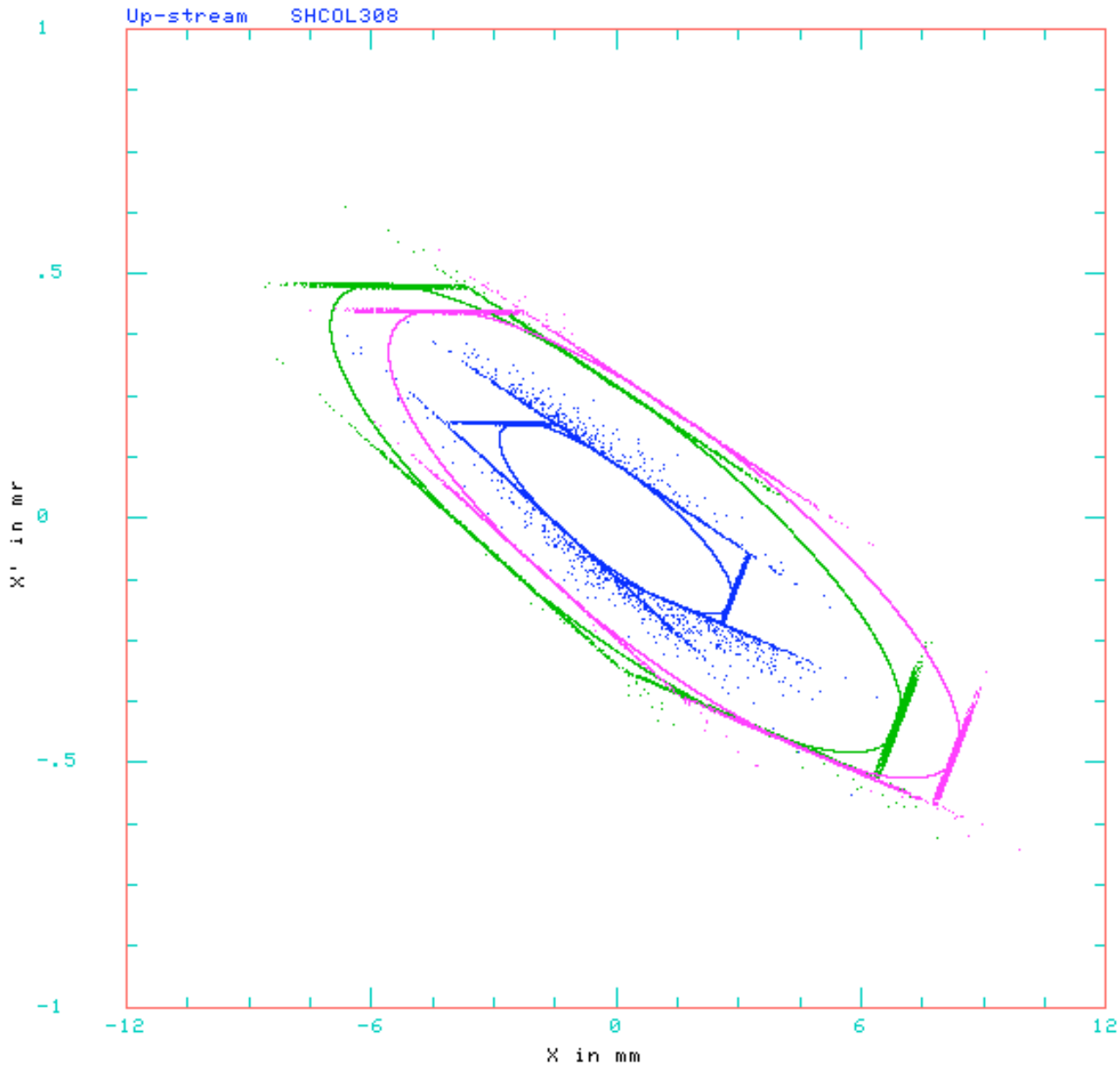
$\sigma_p/p = 0$

$\varepsilon_H = 3\pi,\ \Delta_p/p = 0$

$\varepsilon_H = 18\pi,\ \Delta_p/p = 0$

$\varepsilon_H = 18\pi,\ \Delta_p/p = 0.0$

Secondary collimator at 308, 5th turn



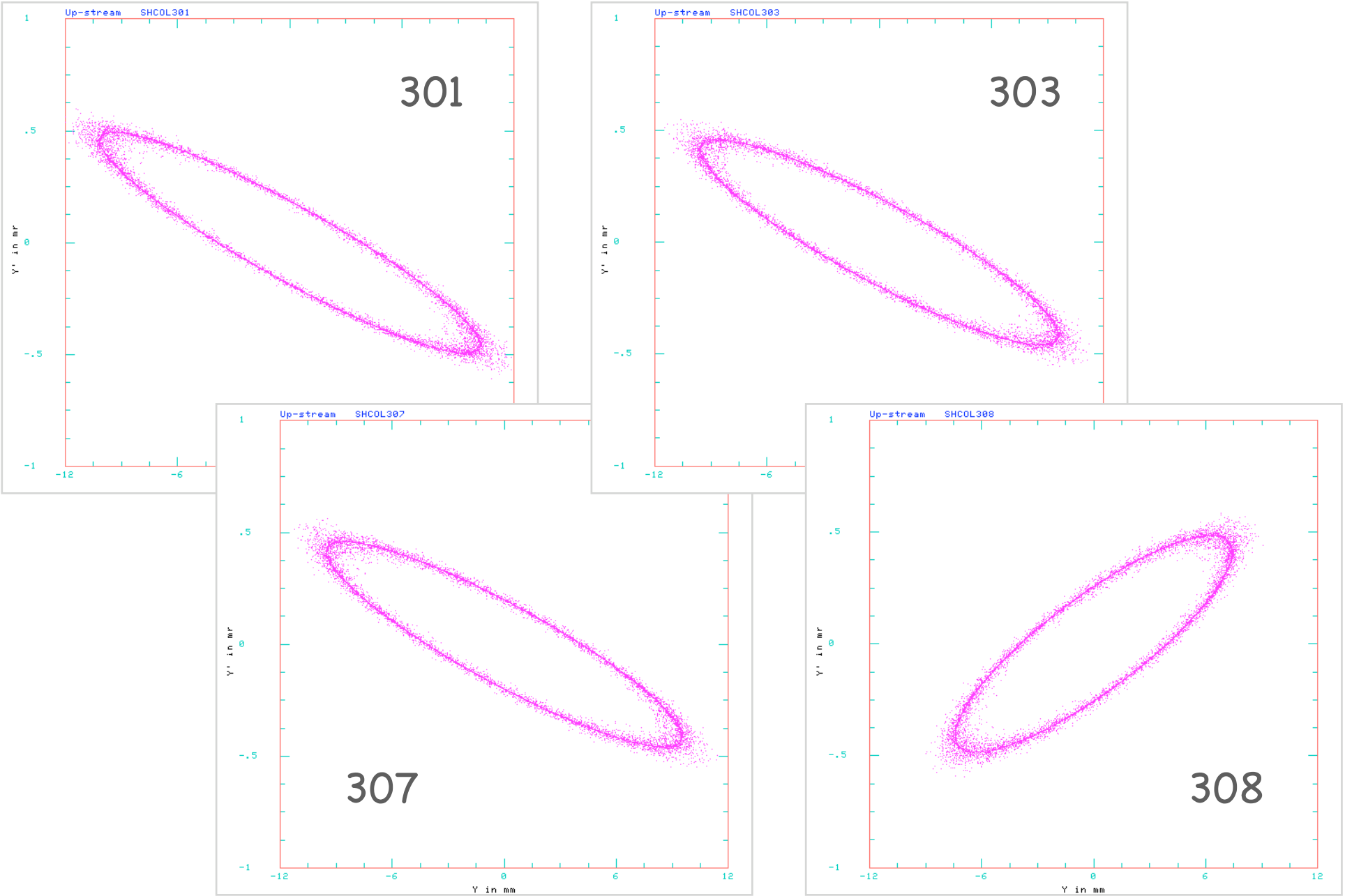
$\sigma_p/p = 0$

$\varepsilon_H = 3\pi,\ \Delta_p/p = 0$

$\varepsilon_H = 18\pi,\ \Delta_p/p = 0$

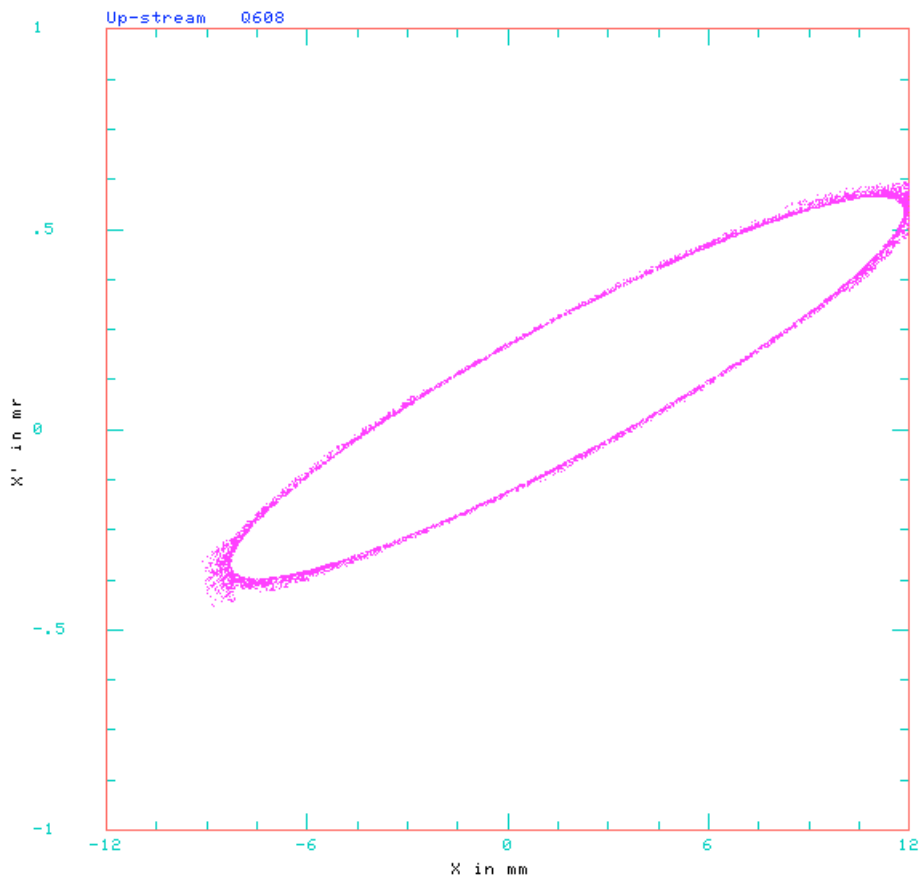
$\varepsilon_H = 18\pi,\ \Delta_p/p = 0.0$

Vertical plane 5th turn, all secondaries

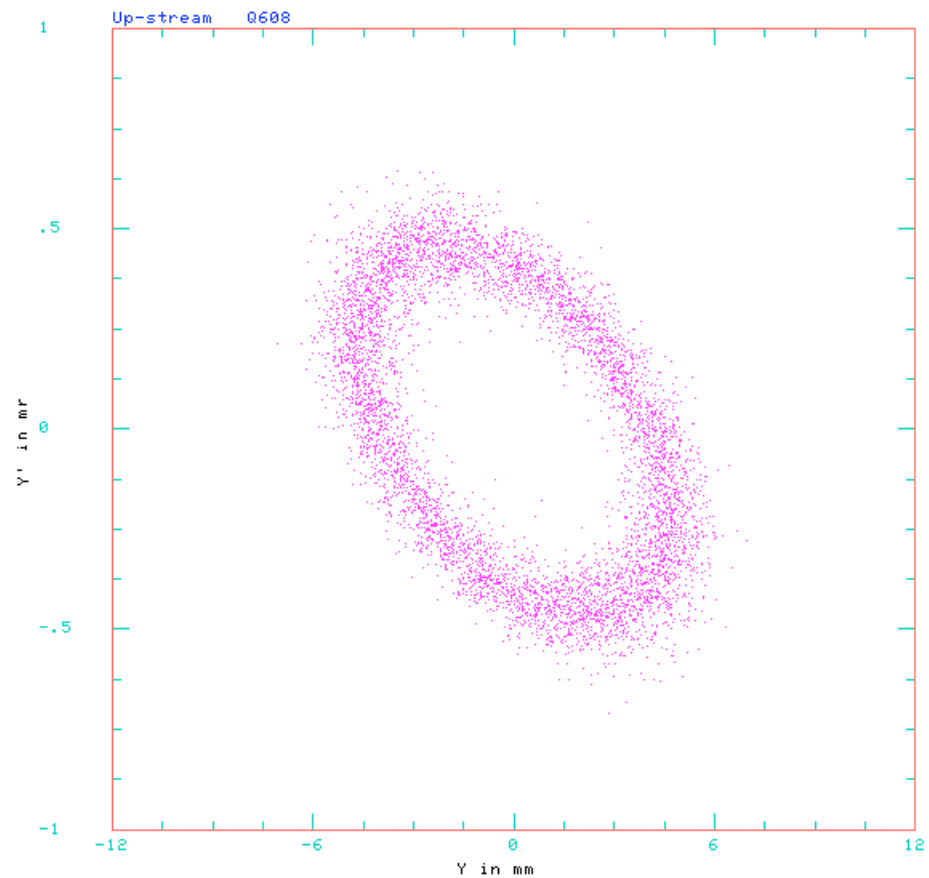


Q608 up-stream, at 100 turns

Horizontal



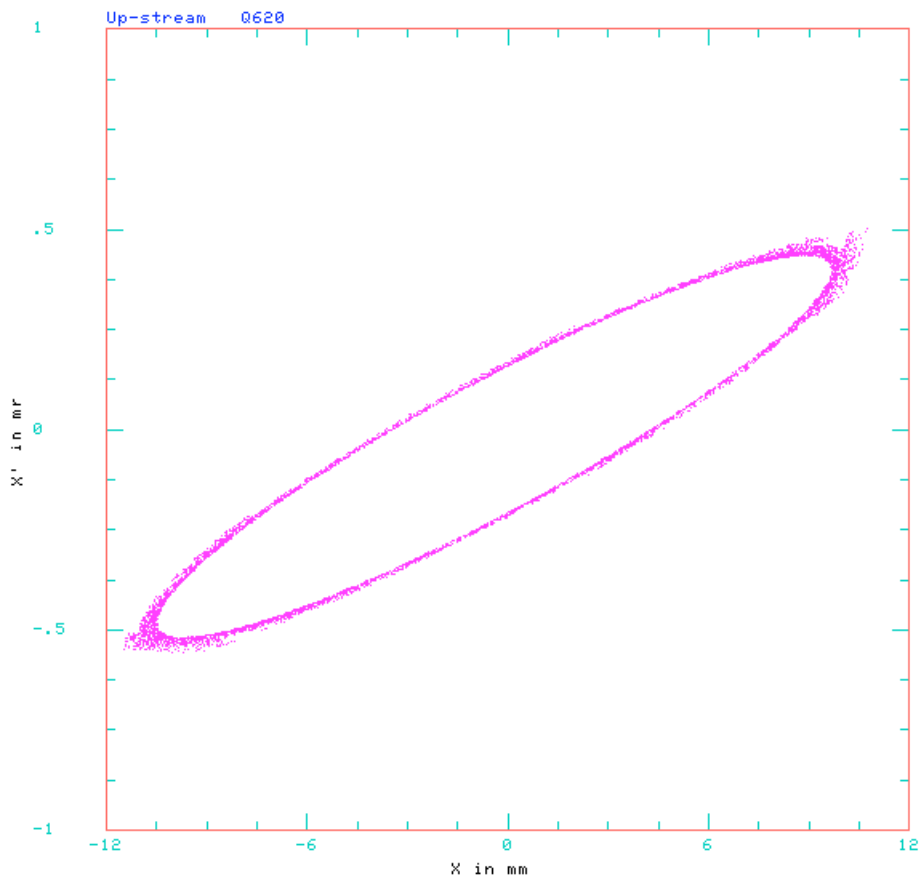
Vertical



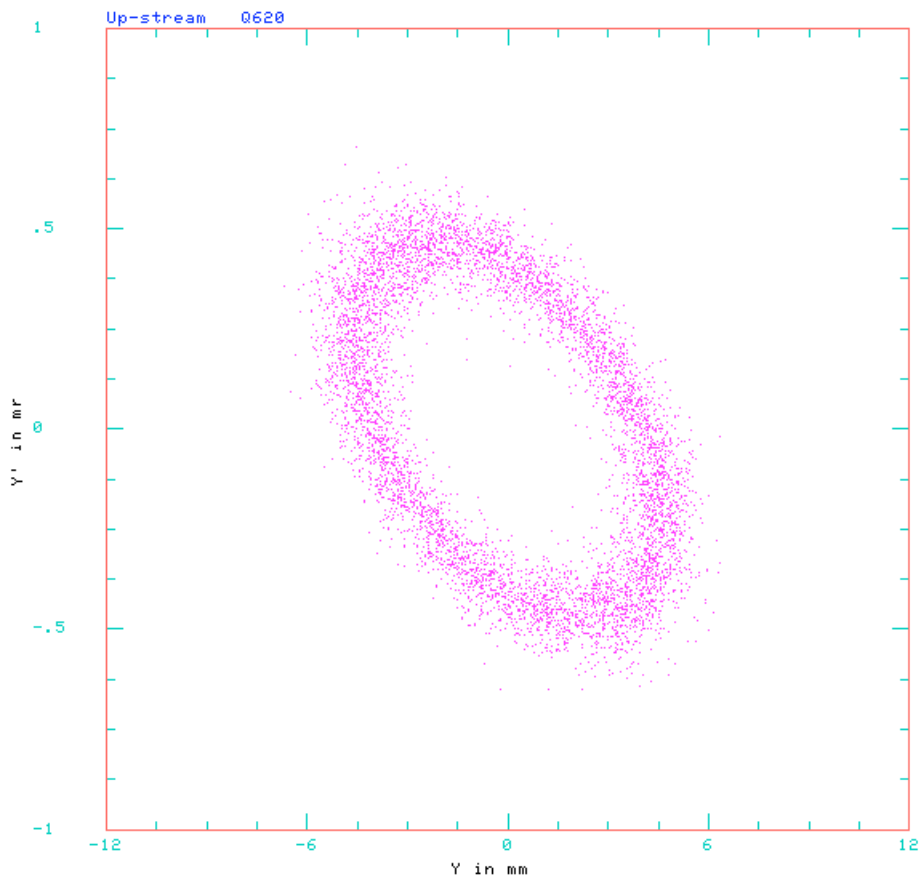
~75% of beam particles scraped

Q620 up-stream, at 100 turns

Horizontal



Vertical



Tracking 500 turns

Total of 25,000 beam particles

Location	$\sigma_p/p = 0$	$\sigma_p/p = 0.07\%$	Comment
230	130963	86725	primary
301	7545	3701	secondary
303	13198	6754	secondary
307	4144	3057	secondary
308	54	52	secondary
	24941	13564	Total scraped