Append. D Tables of computed beam dimensions and quad excitation currents

Assume the "Standard case", described in Doron's Report # 29 and in Table3:
E = 1.4 MeV
$\varepsilon = 22\pi$mm – mrad
$X_w = 1.6466$mm
$X_b = 1.003$mm (analytical result starting point)
$Y_b = 1.574$mm (analytical result starting point)
$2W_{x0} = 2W_{y0} = 15$m at $z_w = \pm 2680$mm

Going through the procedure described in page 3 we computed the beam dimensions and quad excitation currents and compared to Doron's results:

A. Operating ELOP from the wiggler center at no-scalloping conditions and computing beam dimensions at different locations.

Parameter		**Position**	**Doron**	**Mark 18/12/02**	
Optimal beam Wiggling amplitude and dimensions	$2X_w$ $2X_b$ $2Y_b$	$-600 < z < 600$	3.29 2.006 3.1	3.27 2.01 3.4	
Resonator aperture (left)	2x 2y	-646	~ 2.8 mm * ~ 5.0 mm	2.8 mm 4.6 mm	
Resonator aperture (right)	2x 2y	+671	3.6 mm ~ 5-7mm *	3.55 mm 5.6 mm	
S2	2x 2y	-719		5.2 mm 7.5 mm	
S3	2x 2y	813		8.7mm 11.2mm	

* Correction of error in report # 29

Parameter		**Doron**	**Mark**	
Virtual waist size	$2W_{0x}$	2.23	2.23	
	$2W_{0y}$	2.35	2.35	
Virtual waist position	Z_{wx}	± 600	± 600	
	Z_{wy}	± 536	± 544	

B. Running QUADOPT for $2W_{0x} = 2W_{0y} = 15$mm to calculate quad currents and beam parameters in the quads region.

B1 – Solution # 1

	Doron	Mark	
Quad #	**Current [A]**	**Current [A]**	
I_1	+1.56404	+1.60356	
I_2	-1.19619	-1.19626	
I_3	+1.30525	+1.31153	
I_4	-0.65048	-0.69281	
I_5	-0.65048	-0.69281	
I_6	+1.30525	+1.31153	
I_7	-1.19619	-1.19626	
I_8	+1.56404	+1.60356	

Beam size in extreme points

	Doron	Mark
$2X_{bmax}$	45 mm	47mm
$2Y_{bmax}$	50 mm	46mm

B2 - Solution # 2

	Doron	Mark	
Quad #	**Current [A]**	**Current [A]**	
I_1	- 1.63883	-1.67594	
I_2	+ 1.20707	+1.22262	
I_3	- 1.30359	-1.28847	
I_4	+ 0.72489	+0.65607	
I_5	+ 0.72489	+0.65607	
I_6	- 1.30359	-1.28847	
I_7	+ 1.20707	+1.22262	
I_8	- 1.63883	-1.67594	

Beam size in extreme points

	Doron	Mark
$2X_{bmax}$	42 mm	46mm
$2Y_{bmax}$	54 mm	52mm