

Last Updated: 20 July 2006

**Hall A “LEDEX” RunPlan**  
**1<sup>st</sup> Low-Energy Beam Period ( $E_0 = 362$  MeV): July 24 – Aug. 20, 2006**  
**E05-103**

PRE-RUN RATE (AND POLARIZATION UNCERTAINTY) ESTIMATES

This table provides results of calculations run by S. Beck to assist in pre-estimating rates at each production kinematic setting to guide likely needed beam current at each point. Rates are estimates for Deuteron production target, with 4% R.L. radiator, and a **the small 2 msr** collimator in HRS-L (**AND uses the estimate that the Total Rate from Deut-target/Radiator-In is 3x what the code provides for photodisintegration rate**). Uncertainties in polarizations use rough FPP efficiencies, and assume a total of 12 hours running at each point (split optimally between D/Rad-In, D/Rad-Out, H/Rad-In, H/Rad-Out). Currents are selected to produce a rate somewhere ~2+ kHz, which should be the max DAQ limit for us.

**Note: the spectrometer momentum/angle settings calculated here may vary slightly from those provided in the “KINTABLE” of the LEDEX RunPlan – please use the KINTABLE values for setting spectrometers! This table is to provide estimates...which are still appropriate for reference, even though the settings will vary slightly from actual.**

$\theta_{cm}$ [ $^\circ$ ]	$\theta_{lab}$ (p) [ $^\circ$ ]	$E(\gamma)$ [MeV]	$P_{lab}$ (p) [MeV/c] (~)	$d\sigma/d\Omega$ [ $\mu\text{b/sr}$ ]	$I$ [ $\mu\text{A}$ ]	Rate [c/s]	$T$ [hours]	$dPy$ (gd+BG)	$dCx$	$dCz$
20	15.3	318-367	756	5.27	4	~2550	12	0.06	0.04	0.041
			734	6.18				~0.043	~0.03	~0.03
			712	7.0				~0.036	~0.02	~0.02
	15.5	275-317	685	7.60	3.0	~3630	12	0.045 (?0.07)	~0.02	~0.02
			655	8.22				0.06(?0.1)	~0.02	~0.02
30	23.0	317-367	745	5.21	4	~2670	12	~0.053	~0.035	~0.035
			723	6.17				~0.04	~0.024	~0.024
			701	7.00				~0.035	~0.02	0.02
	23.4	274-317	675	7.64	3.0	~3780	12	0.045(?0.08)	~0.02	~0.02
			645	8.29				0.057(?0.11)	~0.02	~0.02
40	31.1	315-362	725	4.98	4	~2500	12	~0.065	~0.03	~0.03
			700	5.9				~0.05	~0.02	~0.02
			680	6.75				~0.05	~0.02	~0.02
	31.1	270-	655	7.22	4	~3300	12	~0.03(0.21)	~0.02	~0.02

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		310	630	7.96				~0.03(1.)	~0.02	~0.02
50	39.1	315-362	705	4.78	4	~2400	12	~0.06	~0.03	~0.03
			685	5.65				~0.06	~0.025	~0.025
			665	6.48				~0.06	~0.024	~0.024
	39.1	270-310	640	6.94	4	~3100	12	~0.04(0.33)	~0.02	~0.02
			610	7.68				~0.04(0.4)	~0.02	~0.02
60	47.4	315-362	685	4.64	4	~2100	12	~0.05(0.08)	~0.03	~0.03
			665	5.46				~0.05(-''-)	~0.03	~0.03
			645	6.25				~0.05(-''-)	~0.03	~0.03
	47.4	270-315	625	6.69	4	~3200	12	~0.04(0.47)	~0.03	~0.03
			600	~7.6				~0.04(0.13)	~0.025	~0.025
70	56	315-362	660	4.55	4	~1800	12	~0.06(0.11)	~0.04	~0.04
			640	5.31				~0.06(-''-)	~0.035	~0.035
			620	6.05				~0.06(-''-)	~0.035	~0.035
	56	270-315	600	6.46	4	~3000	12	~0.05(0.27)	~0.03	~0.03
			580	~7.2				~0.05(0.14)	~0.03	~0.03
80	64.6	310-362	630	4.34	6	~2600	12	~0.06(0.13)	~0.04	~0.04
			610	5.06				~0.06(0.14)	~0.04	~0.04
			595	~5.7				~0.05(1.1)	~0.03	~0.03
	64.6	270-315	580	6.11	4	~2500	12	~0.07(0.5)	~0.04	~0.04
			555	~6.8				~0.06(0.17)	~0.04	~0.04
90	73.8	310-362	600	3.92	6	~2200	12	~0.08(0.2)	~0.05	~0.05
			585	4.57				~0.07(0.2)	~0.05	~0.05
			570	~5.2				~0.07(1.1)	~0.04	~0.04
	73.8	270-315	550	~5.8	6	~3200	12	~0.06(0.2)	~0.04	~0.04
			530	~6.2				~0.08(0.3)	~0.05	~0.05

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100	83.3	310-362	570	3.32	6( $\uparrow$ )	~1900	12	~0.11(0.4)	~0.07	~0.07
			555	3.9				~0.1(0.5)	~0.06	~0.06
			540	~4.5				~0.09(0.6)	~0.06	~0.06
	83.3	270-315	530	~5.1	6	~2600	12	~0.09(0.3)	~0.06	~0.06
			505	~5.4				~0.11(0.4)	~0.07	~0.07
110	93.3	310-362	540	2.69	6( $\uparrow$ )	~1500	12	~0.16(0.8)	~0.1	~0.1
			530	3.19				~0.14(1.)	~0.09	~0.09
			515	~3.6				~0.13(0.6)	~0.08	~0.08
	93.3	270-320	500	~3.2	6	~2400	12	~0.11(0.4)	~0.07	~0.07
			480	~4.6				~0.14(0.5)	~0.09	~0.09