Specification of the “Frozen” IR FEL Transport System

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Abstract

We specify the “frozen” design for the beam transport system of the IR FEL driver.

Introduction

The conceptual design of the IR FEL driver accelerator has been previously described [1]. We now specify the “final” version of the detailed design for this accelerator by giving major element locations and parametric descriptions for the transport system. The machine differs in some details from the previously documented conceptual design. These differences are described in the following section, and have little impact on the dynamics of the machine. This design will therefore have error sensitivities and performance similar to the conceptual design. Error estimates and error budgets developed for the conceptual design [2] therefore apply to this version.

New Features Included In Final Design

We detail the concept presented at the M7 meeting of 25 November 1996. The following features differ from those of the conceptual design described in Reference [1]:

- reinjection matching is provided - a four quad telescope replaces the reinjection quad singlet [3];
- an additional diagnostic slot ~8 inch long is provided, as requested (for a diagnostic cavity) by Geoff Krafft;
- a circumference of 501.5 RF wavelengths is implemented to support multipass monitoring [4];
- the main dipole field roll-off integral has been set to 0.27 [5], and the dipole gaps have, in the optical model, been set to values consistent with the mechanical design [6];
- a small discrepancy in the momentum compaction (residual M_{56} of 10^{-6} m from wiggler to linac), introduced in June 1996 while reinjection/extraction chicane layouts were finalized, has been removed;
- the following additional beamline elements are required:
  - o 3 “QB jrs” (QG is the official name, I think) for the reinjection telescope,
  - o 1 H/V correction pair (in the reinjection telescope),
  - o 1 BPM (in the reinjection telescope), and
  - o 5 trim channels (for reinjection telescope quads and correctors).

The trim channel requirement may give pause, as allocations of most of the available channels have been made for other uses. However, the path length adjustment system described in Reference [1] has been allowed four trim channels [7]. We note that the four horizontal steerers employed for path length adjustment are not standard horizontal correctors (as they must provide ~30 mrad angular kicks) and would best be powered in series by a single power supply (which may have to provide more power than a single trim channel, by virtue of the load, and which would provide a single knob in hardware for path length adjustment). Therefore, at least three and perhaps as many as four of the presently allocated trim channels can be redistributed to give most of the required "new" trim channels. An additional power supply, matched to the 4 as-yet undesignated horizontal steerers, powered in series, must be provided.

We emphasize that the machine footprint and magnet locations are now not subject change without invoking the change control process, nor can main magnet configurations (angle, length, pole face rotations, *etc.*) be altered unless the device in question is exempted from this phase transition as noted in the following section.

What is NOT Yet Frozen?

The following items are NOT to be considered frozen; the driver definition given below is still a working configuration with regard to them.

- Any of the following may move:
    - o trim elements (correctors, trim quads, and sextupoles) may move by up to tens of centimeters, to optimize system response and tuning range;
    - o reinjection match quads may move by up to tens of centimeters (as this is a new module and is not fully optimized), but the slot length (final reverse bend to first reinjection chicane bend) will not change;
    - o diagnostic locations may change by up to tens of centimeters, as error studies give guidance to the optimized locations.
- Quadrupole and sextupole excitations may change in magnitude and polarity.

These reservations are made so as to allow final optimization of the trim and correction systems without interfering with the procurement cycle for the main transport magnets. For example, I want to make sure the BPMs in the upstream and downstream telescopes are moved as close to the quad next to the wiggler as possible, and that the sextupoles are in an optimum location, and so forth... without holding up the dipole contracts.

Comments

The following statements apply to the final design defined in the next section.

1. Tolerances, powering schemes, field quality, *etc*., are all unchanged from those specified for previous designs. A few minor details have been polished. The momentum compaction of the reinjection/extraction chicanes is now exactly compensated in the arcs, so the nominal M_{56} from wiggler center to reinjection point is now exactly 0 (it was 10^{-6} m in the baseline conceptual design, sorry to say...). "Exact" gap values (as provided by George Biallas) have been included in the DIMAD deck defining the beam line. We use 2.115 inches in the optical cavity chicane bends, 2.03 inches in the reverse bends, 2 inches in the π-bends and injection line/extraction chicane/reinjection chicane bends.

2. K_1^{dipole} (dipole field rolloff integral) is 0.27 (thanks, Jeff Karn for the 0.27 and George B for reminding me it IS 0.27 and NOT 0.28!)

3. The machine circumference (injection point to reinjection point is 501.5 λ_{RF}; the machine width is 5.75 m.

4. There is a reinjection match slot ~2 m long with 3 new quads, a new corrector pair, and 1 additional position diagnostic (probably a BPM, though an OTR [in addition, not instead] would be nice too...).

5. This design (and all previous ones!) is cryomodule RF phase insensitive [8] - that is, the linac focussing is near a minimum on crest/in trough, so varying the *module* phase ~ $\pm 10°$ or so is not a big deal. As in all previous designs, the optics are extremely sensitive to the phase of the cryo*unit*.

6. The injection line matching region has been changed [9]. It now can match to the design injection phase space for a variety of injector operating conditions. The total matching slot is the same (the first and last quads are still in same place) but the inner quads are now evenly spaced.

7. The reinjection match of the driver is still under development. The spacing is preliminary and further optimization may be needed. The same is true of the trim and correction elements (trim quads, sextupoles, and correctors) and detailed diagnostic locations. Moves at the several centimeter level may be needed during final optimization of the diagnostic/correction package.

8. Other than optimization of the correction packages, the remaining project lattice design tasks are as follows:
   a. verifying dynamic range of matching telescopes (this must be checked against FEL requirements [10]);
   b. recheck error simulations to certify error budget and diagnostic/correction packages and determine the impact of magnetic field inhomogenieties;
   c. implementation of skew quad correction package
   d. start operational simulations to support procedure development, optimized location of locks, *etc*.

Driver Definition: Beam Envelopes, Element Listing, and Layout

Table 1 presents design beam envelope functions from injection point to final extraction to dump for the entire driver . Beha vior and peak values differ little from the baseline design; aberrations and error sensitivities will not c hange significantly .

Table 1: Beam Envelope Functions for IR FEL Driver

ELEMENT	#	BETAX	ALPHAX	BETAY	ALPHAY	ETAX	ETAPX	ETAY	ETAPY	NUX	NUY	EL. LEN	TOT. LEN	EIDEAL	EREAL
		5.000	.0000	5.000	.0000	.000	.000	.000	.000					1.000	1.000
DDPB	1	5.200	-.2000	5.200	-.2000	.000	.000	.000	.000	.0314	.0314	1.000	1.000	1.000	1.000
DA1	2	5.471	-.3068	5.471	-.3068	.000	.000	.000	.000	.0474	.0474	.534	1.534	1.000	1.000
AC11	3	5.668	.0089	5.668	.0089	.000	.000	.000	.000	.0672	.0672	.700	2.234	1.000	1.000
DA2	4	5.668	.0001	5.668	.0001	.000	.000	.000	.000	.0686	.0686	.050	2.284	1.000	1.000
AC12	5	5.570	.1299	5.570	.1299	.000	.000	.000	.000	.0884	.0884	.700	2.984	1.000	1.000
DA3	6	5.489	.0459	5.489	.0459	.000	.000	.000	.000	.1016	.1016	.461	3.445	1.000	1.000
AC13	7	5.400	.0762	5.400	.0762	.000	.000	.000	.000	.1221	.1221	.700	4.145	1.000	1.000
DA2	8	5.393	.0669	5.393	.0669	.000	.000	.000	.000	.1235	.1235	.050	4.195	1.000	1.000
AC14	9	5.313	.0451	5.313	.0451	.000	.000	.000	.000	.1444	.1444	.700	4.895	1.000	1.000
DA3	10	5.312	-.0418	5.312	-.0418	.000	.000	.000	.000	.1582	.1582	.461	5.355	1.000	1.000
AC15	11	5.405	-.0923	5.405	-.0923	.000	.000	.000	.000	.1790	.1790	.700	6.055	1.000	1.000
DA2	12	5.415	-.1016	5.415	-.1016	.000	.000	.000	.000	.1804	.1804	.050	6.105	1.000	1.000
AC16	13	5.603	-.1673	5.603	-.1673	.000	.000	.000	.000	.2007	.2007	.700	6.805	1.000	1.000
DA3	14	5.796	-.2518	5.796	-.2518	.000	.000	.000	.000	.2136	.2136	.461	7.266	1.000	1.000
AC17	15	6.199	-.3232	6.199	-.3232	.000	.000	.000	.000	.2322	.2322	.700	7.966	1.000	1.000
DA2	16	6.232	-.3321	6.232	-.3321	.000	.000	.000	.000	.2335	.2335	.050	8.016	1.000	1.000
AC18	17	6.750	-.4065	6.750	-.4065	.000	.000	.000	.000	.2506	.2506	.700	8.716	1.000	1.000
DA1	18	7.233	-.4987	7.233	-.4987	.000	.000	.000	.000	.2628	.2628	.534	9.250	1.000	1.000
FIXU	19	7.233	-.4987	7.233	-.4987	.000	.000	.000	.000	.2628	.2628	.000	9.250	1.000	1.000
DDPA	20	8.403	-.6713	8.403	-.6713	.000	.000	.000	.000	.2833	.2833	1.000	10.250	1.000	1.000
DGAK	21	8.666	-.7043	8.666	-.7043	.000	.000	.000	.000	.2869	.2869	.191	10.441	1.000	1.000
DI1	22	9.397	-.7889	9.397	-.7889	.000	.000	.000	.000	.2955	.2955	.490	10.931	1.000	1.000
DBUMP1	23	9.670	.5883	9.755	-1.9457	.010	.087	.000	.000	.2991	.2991	.215	11.146	1.000	1.000
DI2	24	9.161	.5246	11.637	-2.1701	.050	.087	.000	.000	.3068	.3059	.457	11.604	1.000	1.000
DBUMP2	25	8.954	-.0352	12.931	-.7554	.050	-.087	.000	.000	.3144	.3115	.430	12.034	1.000	1.000
DI2	26	9.009	-.0864	13.647	-.8110	.010	-.087	.000	.000	.3225	.3170	.457	12.491	1.000	1.000
DBUMP3	27	8.562	1.1717	14.679	-2.4825	.000	.000	.000	.000	.3264	.3194	.215	12.707	1.000	1.000
DI1	28	7.481	1.0360	17.227	-2.7214	.000	.000	.000	.000	.3361	.3243	.490	13.196	1.000	1.000
FITM1	29	7.481	1.0360	17.227	-2.7214	.000	.000	.000	.000	.3361	.3243	.000	13.196	1.000	1.000

QM11	30	8.204	−6.0722	15.759	12.0599	.000	.000	.000	.000	.3392	.3257	.150	13.346	1.000	1.000
DM1A	31	15.430	−8.3803	6.022	7.4137	.000	.000	.000	.000	.3463	.3339	.500	13.846	1.000	1.000
QM12	32	15.832	5.8213	4.662	2.0630	.000	.000	.000	.000	.3478	.3385	.150	13.996	1.000	1.000
DM1A	33	10.562	4.7195	2.880	1.4993	.000	.000	.000	.000	.3539	.3603	.500	14.496	1.000	1.000
QM13	34	9.547	2.1280	2.364	1.9025	.000	.000	.000	.000	.3563	.3694	.150	14.646	1.000	1.000
DB1	35	8.322	1.9543	1.398	1.3163	.000	.000	.000	.000	.3617	.3958	.300	14.946	1.000	1.000
BBUMP1	36	6.851	1.7227	.542	.6365	−.078	−.391	.000	.000	.3701	.4738	.410	15.356	1.000	1.000
DB2	37	4.863	1.3476	.805	−1.0421	−.331	−.391	.000	.000	.3880	.6923	.648	16.004	1.000	1.000
BBUMP2	38	3.878	1.1160	1.939	−1.5452	−.409	.000	.000	.000	.4027	.7455	.410	16.414	1.000	1.000
DB3	39	3.167	.9133	3.235	−2.1566	−.409	.000	.000	.000	.4186	.7679	.350	16.764	1.000	1.000
DB3	40	2.599	.7107	4.959	−2.7681	−.409	.000	.000	.000	.4381	.7818	.350	17.114	1.000	1.000
MIRROR	41	2.599	.7107	4.959	−2.7681	−.409	.000	.000	.000	.4381	.7818	.000	17.114	1.000	1.000
BBUMP3	42	2.123	.4790	6.755	−1.3278	−.331	.391	.000	.000	.4653	.7931	.410	17.524	1.000	1.000
DB2	43	1.746	.1040	8.646	−1.5928	−.078	.391	.000	.000	.5199	.8066	.648	18.172	1.000	1.000
BBUMP4	44	1.755	−.1276	8.853	1.1196	.000	.000	.000	.000	.5566	.8140	.410	18.582	1.000	1.000
DB1	45	1.884	−.3014	8.205	1.0432	.000	.000	.000	.000	.5830	.8196	.300	18.882	1.000	1.000
QM14	46	2.199	−1.8752	7.086	6.1530	.000	.000	.000	.000	.5950	.8227	.150	19.032	1.000	1.000
DM1B	47	4.588	−2.9021	2.304	3.4109	.000	.000	.000	.000	.6201	.8425	.500	19.532	1.000	1.000
QM15	48	4.328	4.4901	1.852	−.1561	.000	.000	.000	.000	.6252	.8545	.150	19.682	1.000	1.000
DM1B	49	1.060	2.0455	2.146	−.4326	.000	.000	.000	.000	.6627	.8949	.500	20.182	1.000	1.000
QM16	50	.675	.6572	1.945	1.7001	.000	.000	.000	.000	.6919	.9062	.150	20.332	1.000	1.000
DWD	51	.472	.0000	1.083	1.0801	.000	.000	.000	.000	.7844	.9405	.310	20.642	1.000	1.000
BWPA	52	.472	.0000	1.069	1.0666	.000	.000	.000	−.014	.7867	.9415	.007	20.649	1.000	1.000
BWPB	53	.472	.0000	1.040	1.0396	.000	.000	.000	.014	.7913	.9435	.014	20.662	1.000	1.000
BWPD	54	.472	.0000	1.026	1.0261	.000	.000	.000	.000	.7935	.9446	.007	20.669	1.000	1.000
BWPA	55	.472	.0000	1.012	1.0126	.000	.000	.000	−.014	.7958	.9456	.007	20.676	1.000	1.000
BWPB	56	.472	.0000	.986	.9856	.000	.000	.000	.014	.8004	.9478	.014	20.689	1.000	1.000
BWPD	57	.472	.0000	.972	.9721	.000	.000	.000	.000	.8026	.9489	.007	20.696	1.000	1.000
BWPA	58	.472	.0000	.959	.9586	.000	.000	.000	−.014	.8049	.9500	.007	20.703	1.000	1.000
BWPB	59	.472	.0000	.934	.9316	.000	.000	.000	.014	.8095	.9522	.014	20.716	1.000	1.000
BWPD	60	.472	.0000	.921	.9181	.000	.000	.000	.000	.8118	.9534	.007	20.723	1.000	1.000
BWPA	61	.472	.0000	.909	.9046	.000	.000	.000	−.014	.8140	.9546	.007	20.730	1.000	1.000
BWPB	62	.472	.0000	.885	.8776	.000	.000	.000	.014	.8186	.9570	.014	20.743	1.000	1.000
BWPD	63	.472	.0000	.873	.8641	.000	.000	.000	.000	.8209	.9582	.007	20.750	1.000	1.000
BWPA	64	.472	.0000	.862	.8506	.000	.000	.000	−.014	.8231	.9594	.007	20.757	1.000	1.000
BWPB	65	.472	.0000	.839	.8236	.000	.000	.000	.014	.8277	.9620	.014	20.770	1.000	1.000
BWPD	66	.472	.0000	.828	.8101	.000	.000	.000	.000	.8300	.9633	.007	20.777	1.000	1.000
BWPA	67	.472	.0000	.817	.7966	.000	.000	.000	−.014	.8323	.9646	.007	20.784	1.000	1.000
BWPB	68	.472	.0000	.796	.7696	.000	.000	.000	.014	.8368	.9672	.014	20.797	1.000	1.000
BWPD	69	.472	.0000	.786	.7561	.000	.000	.000	.000	.8391	.9686	.007	20.804	1.000	1.000
BWPA	70	.472	.0000	.776	.7426	.000	.000	.000	−.014	.8414	.9700	.007	20.811	1.000	1.000
BWPB	71	.472	.0000	.756	.7156	.000	.000	.000	.014	.8459	.9728	.014	20.824	1.000	1.000

BWPD	72	.472	.0000	.746	.7021	.000	.000	.000	.000	.8482	.9742	.007	20.831	1.000	1.000
BWPA	73	.472	.0000	.737	.6886	.000	.000	.000	-.014	.8505	.9756	.007	20.838	1.000	1.000
BWPB	74	.472	.0000	.719	.6616	.000	.000	.000	.014	.8550	.9786	.014	20.851	1.000	1.000
BWPD	75	.472	.0000	.710	.6481	.000	.000	.000	.000	.8573	.9801	.007	20.858	1.000	1.000
BWPA	76	.472	.0000	.701	.6346	.000	.000	.000	-.014	.8596	.9816	.007	20.865	1.000	1.000
BWPB	77	.472	.0000	.684	.6076	.000	.000	.000	.014	.8641	.9847	.014	20.878	1.000	1.000
BWPD	78	.472	.0000	.676	.5941	.000	.000	.000	.000	.8664	.9863	.007	20.885	1.000	1.000
BWPA	79	.472	.0000	.668	.5806	.000	.000	.000	-.014	.8687	.9879	.007	20.892	1.000	1.000
BWPB	80	.472	.0000	.653	.5536	.000	.000	.000	.014	.8733	.9912	.014	20.905	1.000	1.000
BWPD	81	.472	.0000	.646	.5401	.000	.000	.000	.000	.8755	.9928	.007	20.912	1.000	1.000
BWPA	82	.472	.0000	.638	.5266	.000	.000	.000	-.014	.8778	.9945	.007	20.919	1.000	1.000
BWPB	83	.472	.0000	.625	.4996	.000	.000	.000	.014	.8824	.9979	.014	20.932	1.000	1.000
BWPD	84	.472	.0000	.618	.4860	.000	.000	.000	.000	.8846	.9996	.007	20.939	1.000	1.000
BWPA	85	.472	.0000	.612	.4725	.000	.000	.000	-.014	.8869	1.0014	.007	20.946	1.000	1.000
BWPB	86	.472	.0000	.599	.4455	.000	.000	.000	.014	.8915	1.0049	.014	20.959	1.000	1.000
BWPD	87	.472	.0000	.593	.4320	.000	.000	.000	.000	.8937	1.0067	.007	20.966	1.000	1.000
BWPA	88	.472	.0000	.587	.4185	.000	.000	.000	-.014	.8960	1.0085	.007	20.973	1.000	1.000
BWPB	89	.472	.0000	.577	.3915	.000	.000	.000	.014	.9006	1.0122	.014	20.986	1.000	1.000
BWPD	90	.472	.0000	.571	.3780	.000	.000	.000	.000	.9029	1.0141	.007	20.993	1.000	1.000
BWPA	91	.472	.0000	.566	.3645	.000	.000	.000	-.014	.9051	1.0160	.007	21.000	1.000	1.000
BWPB	92	.472	.0000	.557	.3375	.000	.000	.000	.014	.9097	1.0198	.014	21.013	1.000	1.000
BWPD	93	.472	.0000	.552	.3240	.000	.000	.000	.000	.9120	1.0217	.007	21.020	1.000	1.000
BWPA	94	.472	.0000	.548	.3105	.000	.000	.000	-.014	.9142	1.0237	.007	21.027	1.000	1.000
BWPB	95	.472	.0000	.540	.2835	.000	.000	.000	.014	.9188	1.0276	.014	21.040	1.000	1.000
BWPD	96	.472	.0000	.536	.2700	.000	.000	.000	.000	.9211	1.0296	.007	21.047	1.000	1.000
BWPA	97	.472	.0000	.533	.2565	.000	.000	.000	-.014	.9234	1.0317	.007	21.054	1.000	1.000
BWPB	98	.472	.0000	.526	.2295	.000	.000	.000	.014	.9279	1.0357	.014	21.067	1.000	1.000
BWPD	99	.472	.0000	.523	.2160	.000	.000	.000	.000	.9302	1.0378	.007	21.074	1.000	1.000
BWPA	100	.472	.0000	.520	.2025	.000	.000	.000	-.014	.9325	1.0398	.007	21.081	1.000	1.000
BWPB	101	.472	.0000	.515	.1755	.000	.000	.000	.014	.9370	1.0440	.014	21.094	1.000	1.000
BWPD	102	.472	.0000	.513	.1620	.000	.000	.000	.000	.9393	1.0461	.007	21.101	1.000	1.000
BWPA	103	.472	.0000	.511	.1485	.000	.000	.000	-.014	.9416	1.0482	.007	21.108	1.000	1.000
BWPB	104	.472	.0000	.507	.1215	.000	.000	.000	.014	.9461	1.0524	.014	21.121	1.000	1.000
BWPD	105	.472	.0000	.506	.1080	.000	.000	.000	.000	.9484	1.0545	.007	21.128	1.000	1.000
BWPA	106	.472	.0000	.504	.0945	.000	.000	.000	-.014	.9507	1.0566	.007	21.135	1.000	1.000
BWPB	107	.472	.0000	.502	.0675	.000	.000	.000	.014	.9552	1.0609	.014	21.148	1.000	1.000
BWPD	108	.472	.0000	.501	.0540	.000	.000	.000	.000	.9575	1.0630	.007	21.155	1.000	1.000
BWPA	109	.472	.0000	.501	.0405	.000	.000	.000	-.014	.9598	1.0652	.007	21.162	1.000	1.000
BWPB	110	.472	.0000	.500	.0135	.000	.000	.000	.014	.9644	1.0695	.014	21.175	1.000	1.000
BWPD	111	.472	.0000	.500	.0000	.000	.000	.000	.000	.9666	1.0716	.007	21.182	1.000	1.000
BWPA	112	.472	.0000	.500	-.0135	.000	.000	.000	-.014	.9689	1.0738	.007	21.189	1.000	1.000
BWPB	113	.472	.0000	.501	-.0405	.000	.000	.000	.014	.9735	1.0781	.014	21.202	1.000	1.000

BWPD	114	.472	.0000	.501	-.0540	.000	.000	.000	.000	.9757	1.0802	.007	21.209	1.000	1.000
BWPA	115	.472	.0000	.502	-.0675	.000	.000	.000	-.014	.9780	1.0823	.007	21.216	1.000	1.000
BWPB	116	.472	.0000	.504	-.0945	.000	.000	.000	.014	.9826	1.0866	.014	21.229	1.000	1.000
BWPD	117	.472	.0000	.506	-.1080	.000	.000	.000	.000	.9849	1.0887	.007	21.236	1.000	1.000
BWPA	118	.472	.0000	.507	-.1215	.000	.000	.000	-.014	.9871	1.0909	.007	21.243	1.000	1.000
BWPB	119	.472	.0000	.511	-.1485	.000	.000	.000	.014	.9917	1.0951	.014	21.256	1.000	1.000
BWPD	120	.472	.0000	.513	-.1620	.000	.000	.000	.000	.9940	1.0972	.007	21.263	1.000	1.000
BWPA	121	.472	.0000	.515	-.1755	.000	.000	.000	-.014	.9962	1.0993	.007	21.270	1.000	1.000
BWPB	122	.472	.0000	.520	-.2025	.000	.000	.000	.014	1.0008	1.1034	.014	21.283	1.000	1.000
BWPD	123	.472	.0000	.523	-.2160	.000	.000	.000	.000	1.0031	1.1055	.007	21.290	1.000	1.000
BWPA	124	.472	.0000	.526	-.2295	.000	.000	.000	-.014	1.0054	1.1075	.007	21.297	1.000	1.000
BWPB	125	.472	.0000	.533	-.2565	.000	.000	.000	.014	1.0099	1.1116	.014	21.310	1.000	1.000
BWPD	126	.472	.0000	.536	-.2700	.000	.000	.000	.000	1.0122	1.1136	.007	21.317	1.000	1.000
BWPA	127	.472	.0000	.540	-.2835	.000	.000	.000	-.014	1.0145	1.1156	.007	21.324	1.000	1.000
BWPB	128	.472	.0000	.548	-.3105	.000	.000	.000	.014	1.0190	1.1195	.014	21.337	1.000	1.000
BWPD	129	.472	.0000	.552	-.3240	.000	.000	.000	.000	1.0213	1.1215	.007	21.344	1.000	1.000
BWPA	130	.472	.0000	.557	-.3375	.000	.000	.000	-.014	1.0236	1.1234	.007	21.351	1.000	1.000
BWPB	131	.472	.0000	.566	-.3645	.000	.000	.000	.014	1.0281	1.1273	.014	21.364	1.000	1.000
BWPD	132	.472	.0000	.571	-.3780	.000	.000	.000	.000	1.0304	1.1291	.007	21.371	1.000	1.000
BWPA	133	.472	.0000	.577	-.3915	.000	.000	.000	-.014	1.0327	1.1310	.007	21.378	1.000	1.000
BWPB	134	.472	.0000	.587	-.4185	.000	.000	.000	.014	1.0372	1.1347	.014	21.391	1.000	1.000
BWPD	135	.472	.0000	.593	-.4320	.000	.000	.000	.000	1.0395	1.1365	.007	21.398	1.000	1.000
BWPA	136	.472	.0000	.599	-.4455	.000	.000	.000	-.014	1.0418	1.1383	.007	21.405	1.000	1.000
BWPB	137	.472	.0000	.612	-.4725	.000	.000	.000	.014	1.0463	1.1419	.014	21.418	1.000	1.000
BWPD	138	.472	.0000	.618	-.4860	.000	.000	.000	.000	1.0486	1.1436	.007	21.425	1.000	1.000
BWPA	139	.472	.0000	.625	-.4996	.000	.000	.000	-.014	1.0509	1.1454	.007	21.432	1.000	1.000
BWPB	140	.472	.0000	.638	-.5266	.000	.000	.000	.014	1.0555	1.1488	.014	21.445	1.000	1.000
BWPD	141	.472	.0000	.646	-.5401	.000	.000	.000	.000	1.0577	1.1504	.007	21.452	1.000	1.000
BWPA	142	.472	.0000	.653	-.5536	.000	.000	.000	-.014	1.0600	1.1521	.007	21.459	1.000	1.000
BWPB	143	.472	.0000	.668	-.5806	.000	.000	.000	.014	1.0646	1.1553	.014	21.472	1.000	1.000
BWPD	144	.472	.0000	.676	-.5941	.000	.000	.000	.000	1.0668	1.1569	.007	21.479	1.000	1.000
BWPA	145	.472	.0000	.684	-.6076	.000	.000	.000	-.014	1.0691	1.1585	.007	21.486	1.000	1.000
BWPB	146	.472	.0000	.701	-.6346	.000	.000	.000	.014	1.0737	1.1616	.014	21.499	1.000	1.000
BWPD	147	.472	.0000	.710	-.6481	.000	.000	.000	.000	1.0760	1.1631	.007	21.506	1.000	1.000
BWPA	148	.472	.0000	.719	-.6616	.000	.000	.000	-.014	1.0782	1.1646	.007	21.513	1.000	1.000
BWPB	149	.472	.0000	.737	-.6886	.000	.000	.000	.014	1.0828	1.1676	.014	21.526	1.000	1.000
BWPD	150	.472	.0000	.746	-.7021	.000	.000	.000	.000	1.0851	1.1690	.007	21.533	1.000	1.000
BWPA	151	.472	.0000	.756	-.7156	.000	.000	.000	-.014	1.0873	1.1705	.007	21.540	1.000	1.000
BWPB	152	.472	.0000	.776	-.7426	.000	.000	.000	.014	1.0919	1.1733	.014	21.553	1.000	1.000
BWPD	153	.472	.0000	.786	-.7561	.000	.000	.000	.000	1.0942	1.1746	.007	21.560	1.000	1.000
BWPA	154	.472	.0000	.796	-.7696	.000	.000	.000	-.014	1.0965	1.1760	.007	21.567	1.000	1.000
BWPB	155	.472	.0000	.817	-.7966	.000	.000	.000	.014	1.1010	1.1787	.014	21.580	1.000	1.000

BWPD	156	.472	.0000	.828	-.8101	.000	.000	.000	.000	1.1033	1.1800	.007	21.587	1.000	1.000
BWPA	157	.472	.0000	.839	-.8236	.000	.000	.000	-.014	1.1056	1.1813	.007	21.594	1.000	1.000
BWPB	158	.472	.0000	.862	-.8506	.000	.000	.000	.014	1.1101	1.1838	.014	21.607	1.000	1.000
BWPD	159	.472	.0000	.873	-.8641	.000	.000	.000	.000	1.1124	1.1850	.007	21.614	1.000	1.000
BWPA	160	.472	.0000	.885	-.8776	.000	.000	.000	-.014	1.1147	1.1863	.007	21.621	1.000	1.000
BWPB	161	.472	.0000	.909	-.9046	.000	.000	.000	.014	1.1192	1.1886	.014	21.634	1.000	1.000
BWPD	162	.472	.0000	.921	-.9181	.000	.000	.000	.000	1.1215	1.1898	.007	21.641	1.000	1.000
BWPA	163	.472	.0000	.934	-.9316	.000	.000	.000	-.014	1.1238	1.1910	.007	21.648	1.000	1.000
BWPB	164	.472	.0000	.959	-.9586	.000	.000	.000	.014	1.1283	1.1933	.014	21.661	1.000	1.000
BWPD	165	.472	.0000	.972	-.9721	.000	.000	.000	.000	1.1306	1.1944	.007	21.668	1.000	1.000
BWPA	166	.472	.0000	.986	-.9856	.000	.000	.000	-.014	1.1329	1.1955	.007	21.675	1.000	1.000
BWPB	167	.472	.0000	1.012	-1.0126	.000	.000	.000	.014	1.1375	1.1976	.014	21.688	1.000	1.000
BWPD	168	.472	.0000	1.026	-1.0261	.000	.000	.000	.000	1.1397	1.1987	.007	21.695	1.000	1.000
BWPA	169	.472	.0000	1.040	-1.0396	.000	.000	.000	-.014	1.1420	1.1997	.007	21.702	1.000	1.000
BWPB	170	.472	.0000	1.069	-1.0666	.000	.000	.000	.014	1.1466	1.2017	.014	21.715	1.000	1.000
BWPD	171	.472	.0000	1.083	-1.0801	.000	.000	.000	.000	1.1488	1.2027	.007	21.722	1.000	1.000
DWD	172	.675	-.6572	1.945	-1.7001	.000	.000	.000	.000	1.2414	1.2370	.310	22.032	1.000	1.000
QM26	173	1.270	-3.7950	1.727	2.9646	.000	.000	.000	.000	1.2690	1.2492	.150	22.182	1.000	1.000
DM1B	174	8.097	-9.8586	.179	.1310	.000	.000	.000	.000	1.2939	1.4267	.500	22.682	1.000	1.000
QM25	175	8.654	6.5096	.329	-1.2227	.000	.000	.000	.000	1.2966	1.5387	.150	22.832	1.000	1.000
DM1B	176	3.397	4.0034	3.447	-5.0125	.000	.000	.000	.000	1.3113	1.6165	.500	23.332	1.000	1.000
QM24	177	2.815	.1042	4.353	-.6617	.000	.000	.000	.000	1.3192	1.6225	.150	23.482	1.000	1.000
DB1	178	2.785	-.0035	4.780	-.7608	.000	.000	.000	.000	1.3363	1.6330	.300	23.782	1.000	1.000
BBUMP4	179	2.846	-.1471	4.820	.6687	-.078	-.391	.000	.000	1.3590	1.6466	.410	24.192	1.000	1.000
DB2	180	3.187	-.3796	4.080	.4742	-.331	-.391	.000	.000	1.3935	1.6699	.648	24.840	1.000	1.000
BBUMP3	181	3.548	-.5233	3.256	1.4059	-.409	.000	.000	.000	1.4125	1.6878	.410	25.250	1.000	1.000
MIRROR	182	3.548	-.5233	3.256	1.4059	-.409	.000	.000	.000	1.4125	1.6878	.000	25.250	1.000	1.000
DB3	183	3.958	-.6489	2.383	1.0859	-.409	.000	.000	.000	1.4274	1.7079	.350	25.600	1.000	1.000
DB3	184	4.456	-.7746	1.735	.7659	-.409	.000	.000	.000	1.4407	1.7354	.350	25.950	1.000	1.000
BBUMP2	185	5.133	-.9182	1.084	.7191	-.331	.391	.000	.000	1.4540	1.7837	.410	26.360	1.000	1.000
DB2	186	6.473	-1.1507	.740	-.1871	-.078	.391	.000	.000	1.4719	1.9124	.648	27.007	1.000	1.000
BBUMP4	187	7.451	-1.2943	1.026	-.4657	.000	.000	.000	.000	1.4811	1.9904	.410	27.417	1.000	1.000
DB1	188	8.260	-1.4020	1.412	-.8215	.000	.000	.000	.000	1.4872	2.0305	.300	27.717	1.000	1.000
QM23	189	7.791	4.4159	1.864	-2.3000	.000	.000	.000	.000	1.4901	2.0455	.150	27.867	1.000	1.000
DM1A	190	4.033	3.1003	5.008	-3.9873	.000	.000	.000	.000	1.5043	2.0717	.500	28.367	1.000	1.000
QM22	191	3.472	.7499	5.784	-1.0352	.000	.000	.000	.000	1.5108	2.0761	.150	28.517	1.000	1.000
DM1A	192	2.834	.5249	6.909	-1.2143	.000	.000	.000	.000	1.5363	2.0887	.500	29.017	1.000	1.000
QM21	193	2.795	.0000	7.000	.0000	.000	.000	.000	.000	1.5405	2.0904	.075	29.092	1.000	1.000
FIT1	194	2.795	.0000	7.000	.0000	.000	.000	.000	.000	1.5405	2.0904	.000	29.092	1.000	1.000
QA	195	2.724	.9400	7.187	-2.5178	.000	.000	.000	.000	1.5448	2.0921	.075	29.167	1.000	1.000
D0	196	1.686	.4070	11.675	-3.3049	.000	.000	.000	.000	1.6034	2.1055	.771	29.938	1.000	1.000
B1A	197	1.674	.1410	11.805	-1.2680	.001	.051	.000	.000	1.6082	2.1062	.051	29.989	1.000	1.000

B1B	198	1.657	.1947	11.935	-1.2793	.005	.102	.000	.000	1.6131	2.1069	.051	30.041	1.000	1.000
B1B	199	1.634	.2464	12.067	-1.2906	.012	.153	.000	.000	1.6181	2.1075	.051	30.092	1.000	1.000
B1B	200	1.606	.2956	12.200	-1.3019	.021	.204	.000	.000	1.6231	2.1082	.051	30.143	1.000	1.000
B1B	201	1.574	.3416	12.334	-1.3133	.033	.254	.000	.000	1.6283	2.1089	.051	30.195	1.000	1.000
B1B	202	1.536	.3840	12.469	-1.3246	.047	.303	.000	.000	1.6335	2.1095	.051	30.246	1.000	1.000
B1B	203	1.495	.4224	12.606	-1.3359	.064	.351	.000	.000	1.6389	2.1102	.051	30.297	1.000	1.000
B1B	204	1.450	.4564	12.743	-1.3473	.083	.399	.000	.000	1.6444	2.1108	.051	30.348	1.000	1.000
B1B	205	1.402	.4855	12.882	-1.3586	.105	.445	.000	.000	1.6501	2.1115	.051	30.400	1.000	1.000
B1C	206	1.351	.2522	13.022	.9146	.129	.515	.000	.000	1.6561	2.1121	.051	30.451	1.000	1.000
D1	207	2.103	-.8101	10.811	.7244	.823	.515	.000	.000	1.8038	2.1302	1.349	31.800	1.000	1.000
D2F	208	2.103	-.8101	10.811	.7244	.823	.515	.000	.000	1.8038	2.1302	.000	31.800	1.000	1.000
S1	209	2.364	-.9282	10.597	.7032	.901	.515	.000	.000	1.8145	2.1325	.150	31.950	1.000	1.000
D1A	210	2.992	-1.1645	10.188	.6609	1.055	.515	.000	.000	1.8325	2.1371	.300	32.250	1.000	1.000
QT11	211	3.354	-1.2486	10.008	.5382	1.132	.504	.000	.000	1.8400	2.1394	.150	32.400	1.000	1.000
D1F	212	3.354	-1.2486	10.008	.5382	1.132	.504	.000	.000	1.8400	2.1394	.000	32.400	1.000	1.000
D1	213	8.110	-2.2778	8.790	.3644	1.811	.504	.000	.000	1.8816	2.1624	1.349	33.749	1.000	1.000
B2A	214	8.420	-2.8308	8.665	1.2145	1.844	.563	.000	.000	1.8826	2.1633	.051	33.800	1.000	1.000
B2B	215	8.690	-2.4397	8.541	1.1999	1.869	.417	.000	.000	1.8836	2.1643	.051	33.851	1.000	1.000
B2B	216	8.919	-2.0231	8.419	1.1852	1.887	.269	.000	.000	1.8845	2.1652	.051	33.902	1.000	1.000
B2B	217	9.104	-1.5851	8.298	1.1706	1.897	.121	.000	.000	1.8854	2.1662	.051	33.954	1.000	1.000
B2B	218	9.244	-1.1305	8.179	1.1559	1.899	-.028	.000	.000	1.8863	2.1672	.051	34.005	1.000	1.000
B2B	219	9.336	-.6641	8.061	1.1413	1.894	-.176	.000	.000	1.8872	2.1682	.051	34.056	1.000	1.000
B2B	220	9.380	-.1906	7.945	1.1266	1.881	-.325	.000	.000	1.8881	2.1692	.051	34.108	1.000	1.000
B2B	221	9.375	.2848	7.830	1.1120	1.861	-.472	.000	.000	1.8889	2.1703	.051	34.159	1.000	1.000
B2B	222	9.321	.7573	7.717	1.0973	1.833	-.618	.000	.000	1.8898	2.1713	.051	34.210	1.000	1.000
B2C	223	9.220	.1825	7.605	1.8309	1.797	-.560	.000	.000	1.8907	2.1724	.051	34.261	1.000	1.000
D3	224	9.120	.1489	6.558	1.6592	1.629	-.560	.000	.000	1.8959	2.1791	.300	34.561	1.000	1.000
S2	225	9.078	.1321	6.073	1.5733	1.545	-.560	.000	.000	1.8985	2.1829	.150	34.711	1.000	1.000
D3	226	9.009	.0985	5.181	1.4017	1.378	-.560	.000	.000	1.9038	2.1914	.300	35.011	1.000	1.000
QT12	227	9.026	-.2138	4.749	1.4716	1.297	-.516	.000	.000	1.9064	2.1962	.150	35.161	1.000	1.000
D2	228	9.311	-.2805	3.275	1.0877	1.000	-.516	.000	.000	1.9164	2.2196	.576	35.737	1.000	1.000
BB1	229	9.298	.4421	3.115	.9927	.960	-.514	.000	.000	1.9178	2.2235	.079	35.816	1.000	1.000
BB2	230	9.173	1.1539	2.963	.9427	.919	-.509	.000	.000	1.9191	2.2276	.079	35.894	1.000	1.000
BB2	231	8.937	1.8373	2.819	.8926	.880	-.501	.000	.000	1.9205	2.2319	.079	35.973	1.000	1.000
BB2	232	8.598	2.4754	2.683	.8426	.841	-.490	.000	.000	1.9219	2.2365	.079	36.051	1.000	1.000
BB2	233	8.163	3.0526	2.554	.7925	.803	-.476	.000	.000	1.9234	2.2412	.079	36.130	1.000	1.000
BB2	234	7.643	3.5546	2.434	.7424	.766	-.460	.000	.000	1.9250	2.2463	.079	36.209	1.000	1.000
BB2	235	7.051	3.9691	2.321	.6924	.731	-.440	.000	.000	1.9267	2.2515	.079	36.287	1.000	1.000
BB2	236	6.401	4.2858	2.216	.6423	.697	-.417	.000	.000	1.9286	2.2570	.079	36.366	1.000	1.000
BB2	237	5.710	4.4970	2.119	.5922	.665	-.392	.000	.000	1.9306	2.2628	.079	36.444	1.000	1.000
BB2	238	4.994	4.5975	2.030	.5422	.635	-.365	.000	.000	1.9330	2.2688	.079	36.523	1.000	1.000
BB2	239	4.271	4.5848	1.949	.4921	.608	-.335	.000	.000	1.9357	2.2751	.079	36.601	1.000	1.000

BB2	240	3.559	4.4592	1.875	.4421	.583	-.303	.000	.000	1.9389	2.2817	.079	36.680	1.000	1.000
BB2	241	2.876	4.2238	1.810	.3920	.560	-.269	.000	.000	1.9428	2.2884	.079	36.758	1.000	1.000
BB2	242	2.238	3.8844	1.752	.3419	.540	-.234	.000	.000	1.9477	2.2955	.079	36.837	1.000	1.000
BB2	243	1.661	3.4493	1.703	.2919	.524	-.197	.000	.000	1.9542	2.3027	.079	36.915	1.000	1.000
BB2	244	1.159	2.9293	1.661	.2418	.510	-.159	.000	.000	1.9632	2.3101	.079	36.994	1.000	1.000
BB2	245	.744	2.3372	1.627	.1917	.499	-.120	.000	.000	1.9767	2.3178	.079	37.072	1.000	1.000
BB2	246	.428	1.6875	1.600	.1417	.491	-.081	.000	.000	1.9989	2.3255	.079	37.151	1.000	1.000
BB2	247	.216	.9963	1.582	.0916	.486	-.040	.000	.000	2.0404	2.3334	.079	37.230	1.000	1.000
BB2	248	.116	.2805	1.572	.0416	.484	.000	.000	.000	2.1229	2.3413	.079	37.308	1.000	1.000
MID1	249	.116	.2805	1.572	.0416	.484	.000	.000	.000	2.1229	2.3413	.000	37.308	1.000	1.000
BB3	250	.129	-.4421	1.569	-.0085	.486	.040	.000	.000	2.2340	2.3493	.079	37.387	1.000	1.000
BB3	251	.254	-1.1539	1.574	-.0586	.491	.081	.000	.000	2.3055	2.3572	.079	37.465	1.000	1.000
BB3	252	.490	-1.8373	1.587	-.1086	.499	.120	.000	.000	2.3412	2.3651	.079	37.544	1.000	1.000
BB3	253	.829	-2.4754	1.608	-.1587	.510	.159	.000	.000	2.3608	2.3730	.079	37.622	1.000	1.000
BB3	254	1.264	-3.0526	1.637	-.2087	.524	.197	.000	.000	2.3730	2.3807	.079	37.701	1.000	1.000
BB3	255	1.784	-3.5546	1.674	-.2588	.540	.234	.000	.000	2.3814	2.3882	.079	37.779	1.000	1.000
BB3	256	2.376	-3.9691	1.719	-.3089	.560	.269	.000	.000	2.3874	2.3956	.079	37.858	1.000	1.000
BB3	257	3.026	-4.2858	1.771	-.3589	.583	.303	.000	.000	2.3921	2.4028	.079	37.936	1.000	1.000
BB3	258	3.717	-4.4970	1.831	-.4090	.608	.335	.000	.000	2.3958	2.4097	.079	38.015	1.000	1.000
BB3	259	4.433	-4.5975	1.899	-.4591	.635	.365	.000	.000	2.3989	2.4164	.079	38.093	1.000	1.000
BB3	260	5.156	-4.5848	1.976	-.5091	.665	.392	.000	.000	2.4015	2.4229	.079	38.172	1.000	1.000
BB3	261	5.867	-4.4592	2.059	-.5592	.697	.417	.000	.000	2.4038	2.4291	.079	38.251	1.000	1.000
BB3	262	6.551	-4.2238	2.151	-.6092	.731	.440	.000	.000	2.4058	2.4350	.079	38.329	1.000	1.000
BB3	263	7.189	-3.8844	2.251	-.6593	.766	.460	.000	.000	2.4076	2.4407	.079	38.408	1.000	1.000
BB3	264	7.766	-3.4493	2.358	-.7094	.803	.476	.000	.000	2.4093	2.4461	.079	38.486	1.000	1.000
BB3	265	8.268	-2.9293	2.474	-.7594	.841	.490	.000	.000	2.4108	2.4513	.079	38.565	1.000	1.000
BB3	266	8.682	-2.3372	2.597	-.8095	.880	.501	.000	.000	2.4123	2.4562	.079	38.643	1.000	1.000
BB3	267	8.999	-1.6875	2.728	-.8596	.919	.509	.000	.000	2.4137	2.4609	.079	38.722	1.000	1.000
BB3	268	9.210	-.9963	2.867	-.9096	.960	.514	.000	.000	2.4151	2.4654	.079	38.800	1.000	1.000
BB4	269	9.311	-.2805	3.014	-1.0010	1.000	.516	.000	.000	2.4164	2.4696	.079	38.879	1.000	1.000
D2	270	9.672	-.3472	4.387	-1.3836	1.297	.516	.000	.000	2.4261	2.4949	.576	39.455	1.000	1.000
QT12	271	9.827	-.6863	4.794	-1.3259	1.378	.560	.000	.000	2.4286	2.5001	.150	39.605	1.000	1.000
D3	272	10.252	-.7312	5.642	-1.4985	1.545	.560	.000	.000	2.4333	2.5093	.300	39.905	1.000	1.000
S2	273	10.475	-.7536	6.104	-1.5848	1.629	.560	.000	.000	2.4356	2.5134	.150	40.055	1.000	1.000
D3	274	10.941	-.7986	7.107	-1.7574	1.797	.560	.000	.000	2.4401	2.5207	.300	40.355	1.000	1.000
B2A	275	11.121	-1.4851	7.216	-1.0736	1.833	.618	.000	.000	2.4408	2.5218	.051	40.406	1.000	1.000
B2B	276	11.245	-.9228	7.327	-1.0889	1.861	.472	.000	.000	2.4415	2.5229	.051	40.457	1.000	1.000
B2B	277	11.310	-.3508	7.439	-1.1042	1.881	.325	.000	.000	2.4423	2.5240	.051	40.509	1.000	1.000
B2B	278	11.317	.2249	7.553	-1.1195	1.894	.176	.000	.000	2.4430	2.5251	.051	40.560	1.000	1.000
B2B	279	11.264	.7982	7.669	-1.1348	1.899	.028	.000	.000	2.4437	2.5262	.051	40.611	1.000	1.000
B2B	280	11.153	1.3631	7.786	-1.1501	1.897	-.121	.000	.000	2.4444	2.5272	.051	40.662	1.000	1.000
B2B	281	10.985	1.9138	7.905	-1.1654	1.887	-.269	.000	.000	2.4452	2.5283	.051	40.714	1.000	1.000

B2B	282	10.761	2.4443	8.025	-1.1807	1.869	-.417	.000	.000	2.4459	2.5293	.051	40.765	1.000	1.000
B2B	283	10.485	2.9491	8.147	-1.1960	1.844	-.563	.000	.000	2.4467	2.5303	.051	40.816	1.000	1.000
B2C	284	10.158	2.2779	8.270	-.3976	1.811	-.504	.000	.000	2.4475	2.5313	.051	40.868	1.000	1.000
D1	285	5.121	1.4561	9.598	-.5865	1.132	-.504	.000	.000	2.4774	2.5555	1.349	42.216	1.000	1.000
D1F	286	5.121	1.4561	9.598	-.5865	1.132	-.504	.000	.000	2.4774	2.5555	.000	42.216	1.000	1.000
QT11	287	4.691	1.4123	9.792	-.7069	1.055	-.515	.000	.000	2.4823	2.5580	.150	42.366	1.000	1.000
D1A	288	3.901	1.2208	10.230	-.7528	.901	-.515	.000	.000	2.4935	2.5627	.300	42.666	1.000	1.000
S1	289	3.549	1.1250	10.459	-.7758	.823	-.515	.000	.000	2.4999	2.5650	.150	42.816	1.000	1.000
D2F	290	3.549	1.1250	10.459	-.7758	.823	-.515	.000	.000	2.4999	2.5650	.000	42.816	1.000	1.000
D1	291	1.675	.2639	12.831	-.9824	.129	-.515	.000	.000	2.5932	2.5836	1.349	44.165	1.000	1.000
B1A	292	1.678	-.0001	12.701	1.2582	.105	-.445	.000	.000	2.5980	2.5843	.051	44.217	1.000	1.000
B1B	293	1.675	.0553	12.573	1.2477	.083	-.399	.000	.000	2.6029	2.5849	.051	44.268	1.000	1.000
B1B	294	1.667	.1102	12.445	1.2373	.064	-.351	.000	.000	2.6078	2.5855	.051	44.319	1.000	1.000
B1B	295	1.653	.1638	12.319	1.2269	.047	-.303	.000	.000	2.6127	2.5862	.051	44.370	1.000	1.000
B1B	296	1.633	.2158	12.193	1.2165	.033	-.254	.000	.000	2.6177	2.5869	.051	44.422	1.000	1.000
B1B	297	1.609	.2654	12.069	1.2060	.021	-.204	.000	.000	2.6227	2.5875	.051	44.473	1.000	1.000
B1B	298	1.579	.3123	11.946	1.1956	.012	-.153	.000	.000	2.6278	2.5882	.051	44.524	1.000	1.000
B1B	299	1.545	.3559	11.824	1.1852	.005	-.102	.000	.000	2.6331	2.5889	.051	44.575	1.000	1.000
B1B	300	1.506	.3958	11.703	1.1747	.001	-.051	.000	.000	2.6384	2.5896	.051	44.627	1.000	1.000
B1C	301	1.464	.1525	11.583	3.1964	.000	.000	.000	.000	2.6439	2.5903	.051	44.678	1.000	1.000
D0	302	1.644	-.3863	7.231	2.4500	.000	.000	.000	.000	2.7267	2.6037	.771	45.449	1.000	1.000
QAP	303	1.662	.1508	7.055	-.0831	.000	.000	.000	.000	2.7338	2.6054	.075	45.524	1.000	1.000
FIT2	304	1.662	.1508	7.055	-.0831	.000	.000	.000	.000	2.7338	2.6054	.000	45.524	1.000	1.000
QB1	305	1.674	-.3224	6.933	1.6984	.000	.000	.000	.000	2.7410	2.6071	.075	45.599	1.000	1.000
DBK1	306	8.029	-2.0720	1.865	.2116	.000	.000	.000	.000	2.8698	2.7392	2.654	48.252	1.000	1.000
QB2	307	8.185	-.0058	1.872	-.3079	.000	.000	.000	.000	2.8713	2.7456	.075	48.327	1.000	1.000
QB2	308	8.030	2.0608	1.958	-.8512	.000	.000	.000	.000	2.8728	2.7519	.075	48.402	1.000	1.000
DBK1	309	1.694	.3269	12.678	-3.1882	.000	.000	.000	.000	3.0006	2.8413	2.654	51.056	1.000	1.000
QB3	310	1.681	-.1508	12.912	.0831	.000	.000	.000	.000	3.0077	2.8422	.075	51.131	1.000	1.000
FITTEMP	311	1.681	-.1508	12.912	.0831	.000	.000	.000	.000	3.0077	2.8422	.000	51.131	1.000	1.000
QB3	312	1.740	-.6401	12.653	3.3480	.000	.000	.000	.000	3.0147	2.8431	.075	51.206	1.000	1.000
DBK1	313	10.843	-2.7902	1.679	.7874	.000	.000	.000	.000	3.1193	2.9408	2.654	53.860	1.000	1.000
QB4	314	11.053	.0058	1.597	.3079	.000	.000	.000	.000	3.1204	2.9481	.075	53.935	1.000	1.000
QB4	315	10.841	2.8015	1.585	-.1478	.000	.000	.000	.000	3.1214	2.9556	.075	54.010	1.000	1.000
DBK1	316	1.720	.6356	6.909	-1.8582	.000	.000	.000	.000	3.2268	3.1037	2.654	56.663	1.000	1.000
QB5	317	1.662	.1508	7.055	-.0831	.000	.000	.000	.000	3.2338	3.1054	.075	56.738	1.000	1.000
QB5	318	1.674	-.3224	6.933	1.6984	.000	.000	.000	.000	3.2410	3.1071	.075	56.813	1.000	1.000
DBK1	319	8.029	-2.0720	1.865	.2116	.000	.000	.000	.000	3.3698	3.2392	2.654	59.467	1.000	1.000
QB6	320	8.185	-.0058	1.872	-.3079	.000	.000	.000	.000	3.3713	3.2456	.075	59.542	1.000	1.000
QB6	321	8.030	2.0608	1.958	-.8512	.000	.000	.000	.000	3.3728	3.2519	.075	59.617	1.000	1.000
DBK1	322	1.694	.3269	12.678	-3.1882	.000	.000	.000	.000	3.5006	3.3413	2.654	62.271	1.000	1.000
QB7	323	1.681	-.1508	12.912	.0831	.000	.000	.000	.000	3.5077	3.3422	.075	62.346	1.000	1.000

FITBACK	324	1.681	-.1508	12.912	.0831	.000	.000	.000	.000	3.5077	3.3422	.000	62.346	1.000	1.000
QB7	325	1.740	-.6401	12.653	3.3480	.000	.000	.000	.000	3.5147	3.3431	.075	62.421	1.000	1.000
DBK1	326	10.843	-2.7902	1.679	.7874	.000	.000	.000	.000	3.6193	3.4408	2.654	65.074	1.000	1.000
QB8	327	11.053	.0058	1.597	.3079	.000	.000	.000	.000	3.6204	3.4481	.075	65.149	1.000	1.000
QB8	328	10.841	2.8015	1.585	-.1478	.000	.000	.000	.000	3.6214	3.4556	.075	65.224	1.000	1.000
DBK1	329	1.720	.6356	6.909	-1.8582	.000	.000	.000	.000	3.7268	3.6037	2.654	67.878	1.000	1.000
QB9	330	1.662	.1508	7.055	-.0831	.000	.000	.000	.000	3.7338	3.6054	.075	67.953	1.000	1.000
QB9	331	1.674	-.3224	6.933	1.6984	.000	.000	.000	.000	3.7410	3.6071	.075	68.028	1.000	1.000
DBK1	332	8.029	-2.0720	1.865	.2116	.000	.000	.000	.000	3.8698	3.7392	2.654	70.682	1.000	1.000
QB10	333	8.185	-.0058	1.872	-.3079	.000	.000	.000	.000	3.8713	3.7456	.075	70.757	1.000	1.000
QB10	334	8.030	2.0608	1.958	-.8512	.000	.000	.000	.000	3.8728	3.7519	.075	70.832	1.000	1.000
DBK1	335	1.694	.3269	12.678	-3.1882	.000	.000	.000	.000	4.0006	3.8413	2.654	73.485	1.000	1.000
QB11	336	1.681	-.1508	12.912	.0831	.000	.000	.000	.000	4.0077	3.8422	.075	73.560	1.000	1.000
QB11	337	1.740	-.6401	12.653	3.3480	.000	.000	.000	.000	4.0147	3.8431	.075	73.635	1.000	1.000
DBK1	338	10.843	-2.7902	1.679	.7874	.000	.000	.000	.000	4.1193	3.9408	2.654	76.289	1.000	1.000
QB12	339	11.053	.0058	1.597	.3079	.000	.000	.000	.000	4.1204	3.9481	.075	76.364	1.000	1.000
QB12	340	10.841	2.8015	1.585	-.1478	.000	.000	.000	.000	4.1214	3.9556	.075	76.439	1.000	1.000
DBK1	341	1.720	.6356	6.909	-1.8582	.000	.000	.000	.000	4.2268	4.1037	2.654	79.093	1.000	1.000
QB13	342	1.662	.1508	7.055	-.0831	.000	.000	.000	.000	4.2338	4.1054	.075	79.168	1.000	1.000
FITARC	343	1.662	.1508	7.055	-.0831	.000	.000	.000	.000	4.2338	4.1054	.000	79.168	1.000	1.000
QBP	344	1.599	.6720	7.256	-2.6250	.000	.000	.000	.000	4.2411	4.1071	.075	79.243	1.000	1.000
D0	345	1.103	-.0275	11.949	-3.4632	.000	.000	.000	.000	4.3397	4.1203	.771	80.014	1.000	1.000
B1A	346	1.127	-.2290	12.090	-1.3792	.001	.051	.000	.000	4.3470	4.1209	.051	80.065	1.000	1.000
B1B	347	1.150	-.2180	12.232	-1.3915	.005	.102	.000	.000	4.3542	4.1216	.051	80.116	1.000	1.000
B1B	348	1.171	-.2046	12.375	-1.4038	.012	.153	.000	.000	4.3612	4.1223	.051	80.167	1.000	1.000
B1B	349	1.191	-.1891	12.520	-1.4161	.021	.204	.000	.000	4.3681	4.1229	.051	80.219	1.000	1.000
B1B	350	1.210	-.1716	12.666	-1.4284	.033	.254	.000	.000	4.3749	4.1236	.051	80.270	1.000	1.000
B1B	351	1.227	-.1524	12.813	-1.4407	.047	.303	.000	.000	4.3816	4.1242	.051	80.321	1.000	1.000
B1B	352	1.241	-.1315	12.961	-1.4530	.064	.351	.000	.000	4.3882	4.1249	.051	80.372	1.000	1.000
B1B	353	1.253	-.1092	13.111	-1.4653	.083	.399	.000	.000	4.3948	4.1255	.051	80.424	1.000	1.000
B1B	354	1.264	-.0858	13.262	-1.4776	.105	.445	.000	.000	4.4013	4.1261	.051	80.475	1.000	1.000
B1C	355	1.271	-.3037	13.414	.8634	.129	.515	.000	.000	4.4077	4.1267	.051	80.526	1.000	1.000
D1	356	3.654	-1.4628	11.321	.6878	.823	.515	.000	.000	4.5153	4.1442	1.349	81.875	1.000	1.000
D2F	357	3.654	-1.4628	11.321	.6878	.823	.515	.000	.000	4.5153	4.1442	.000	81.875	1.000	1.000
S3	358	4.112	-1.5917	11.118	.6683	.901	.515	.000	.000	4.5215	4.1463	.150	82.025	1.000	1.000
D1A	359	5.144	-1.8495	10.729	.6293	1.055	.515	.000	.000	4.5319	4.1507	.300	82.325	1.000	1.000
QT21	360	5.710	-1.9205	10.559	.5026	1.132	.504	.000	.000	4.5363	4.1529	.150	82.475	1.000	1.000
D1F	361	5.710	-1.9205	10.559	.5026	1.132	.504	.000	.000	4.5363	4.1529	.000	82.475	1.000	1.000
D1	362	12.385	-3.0279	9.419	.3426	1.811	.504	.000	.000	4.5619	4.1745	1.349	83.824	1.000	1.000
B2A	363	12.810	-3.8518	9.290	1.2550	1.844	.563	.000	.000	4.5626	4.1754	.051	83.875	1.000	1.000
B2B	364	13.174	-3.2392	9.162	1.2408	1.869	.417	.000	.000	4.5632	4.1763	.051	83.927	1.000	1.000
B2B	365	13.473	-2.5925	9.035	1.2266	1.887	.269	.000	.000	4.5638	4.1772	.051	83.978	1.000	1.000

B2B	366	13.704	-1.9186	8.910	1.2124	1.897	.121	.000	.000	4.5644	4.1781	.051	84.029	1.000	1.000
B2B	367	13.866	-1.2245	8.786	1.1981	1.899	-.028	.000	.000	4.5650	4.1790	.051	84.080	1.000	1.000
B2B	368	13.955	-.5176	8.664	1.1839	1.894	-.176	.000	.000	4.5656	4.1799	.051	84.132	1.000	1.000
B2B	369	13.972	.1948	8.544	1.1697	1.881	-.325	.000	.000	4.5662	4.1809	.051	84.183	1.000	1.000
B2B	370	13.915	.9051	8.424	1.1555	1.861	-.472	.000	.000	4.5668	4.1818	.051	84.234	1.000	1.000
B2B	371	13.786	1.6059	8.307	1.1413	1.833	-.618	.000	.000	4.5673	4.1828	.051	84.285	1.000	1.000
B2C	372	13.586	.7584	8.190	1.9328	1.797	-.560	.000	.000	4.5679	4.1838	.051	84.337	1.000	1.000
D3	373	13.142	.7236	7.083	1.7593	1.629	-.560	.000	.000	4.5715	4.1901	.300	84.637	1.000	1.000
S4	374	12.927	.7062	6.568	1.6726	1.545	-.560	.000	.000	4.5733	4.1936	.150	84.787	1.000	1.000
D3	375	12.514	.6714	5.616	1.4991	1.378	-.560	.000	.000	4.5771	4.2014	.300	85.087	1.000	1.000
QT22	376	12.376	.2489	5.153	1.5815	1.297	-.516	.000	.000	4.5790	4.2059	.150	85.237	1.000	1.000
D2	377	12.118	.1995	3.557	1.1903	1.000	-.516	.000	.000	4.5865	4.2273	.576	85.813	1.000	1.000
BB1	378	12.013	1.1382	3.382	1.0906	.960	-.514	.000	.000	4.5875	4.2310	.079	85.891	1.000	1.000
BB2	379	11.762	2.0488	3.214	1.0398	.919	-.509	.000	.000	4.5886	4.2347	.079	85.970	1.000	1.000
BB2	380	11.372	2.9090	3.055	.9889	.880	-.501	.000	.000	4.5897	4.2387	.079	86.048	1.000	1.000
BB2	381	10.852	3.6976	2.904	.9381	.841	-.490	.000	.000	4.5908	4.2429	.079	86.127	1.000	1.000
BB2	382	10.215	4.3951	2.760	.8872	.803	-.476	.000	.000	4.5920	4.2473	.079	86.205	1.000	1.000
BB2	383	9.477	4.9844	2.625	.8364	.766	-.460	.000	.000	4.5932	4.2520	.079	86.284	1.000	1.000
BB2	384	8.655	5.4509	2.498	.7855	.731	-.440	.000	.000	4.5946	4.2569	.079	86.362	1.000	1.000
BB2	385	7.771	5.7833	2.378	.7347	.697	-.417	.000	.000	4.5961	4.2620	.079	86.441	1.000	1.000
BB2	386	6.846	5.9732	2.267	.6838	.665	-.392	.000	.000	4.5979	4.2674	.079	86.520	1.000	1.000
BB2	387	5.902	6.0161	2.163	.6330	.635	-.365	.000	.000	4.5998	4.2730	.079	86.598	1.000	1.000
BB2	388	4.964	5.9108	2.068	.5821	.608	-.335	.000	.000	4.6021	4.2789	.079	86.677	1.000	1.000
BB2	389	4.053	5.6600	1.981	.5313	.583	-.303	.000	.000	4.6049	4.2851	.079	86.755	1.000	1.000
BB2	390	3.193	5.2698	1.901	.4804	.560	-.269	.000	.000	4.6084	4.2916	.079	86.834	1.000	1.000
BB2	391	2.404	4.7498	1.830	.4296	.540	-.234	.000	.000	4.6129	4.2983	.079	86.912	1.000	1.000
BB2	392	1.707	4.1129	1.766	.3787	.524	-.197	.000	.000	4.6191	4.3052	.079	86.991	1.000	1.000
BB2	393	1.118	3.3748	1.711	.3279	.510	-.159	.000	.000	4.6281	4.3124	.079	87.069	1.000	1.000
BB2	394	.651	2.5535	1.663	.2770	.499	-.120	.000	.000	4.6428	4.3198	.079	87.148	1.000	1.000
BB2	395	.319	1.6693	1.624	.2262	.491	-.081	.000	.000	4.6703	4.3274	.079	87.226	1.000	1.000
BB2	396	.129	.7441	1.592	.1754	.486	-.040	.000	.000	4.7337	4.3352	.079	87.305	1.000	1.000
BB2	397	.086	-.1995	1.569	.1245	.484	.000	.000	.000	4.8678	4.3431	.079	87.383	1.000	1.000
MID2	398	.086	-.1995	1.569	.1245	.484	.000	.000	.000	4.8678	4.3431	.000	87.383	1.000	1.000
BB3	399	.191	-1.1382	1.553	.0737	.486	.040	.000	.000	4.9728	4.3511	.079	87.462	1.000	1.000
BB3	400	.442	-2.0488	1.545	.0228	.491	.081	.000	.000	5.0163	4.3592	.079	87.541	1.000	1.000
BB3	401	.832	-2.9090	1.546	-.0280	.499	.120	.000	.000	5.0370	4.3673	.079	87.619	1.000	1.000
BB3	402	1.352	-3.6976	1.554	-.0789	.510	.159	.000	.000	5.0488	4.3754	.079	87.698	1.000	1.000
BB3	403	1.989	-4.3951	1.571	-.1297	.524	.197	.000	.000	5.0564	4.3834	.079	87.776	1.000	1.000
BB3	404	2.727	-4.9844	1.595	-.1806	.540	.234	.000	.000	5.0617	4.3913	.079	87.855	1.000	1.000
BB3	405	3.548	-5.4509	1.627	-.2314	.560	.269	.000	.000	5.0658	4.3990	.079	87.933	1.000	1.000
BB3	406	4.433	-5.7833	1.668	-.2823	.583	.303	.000	.000	5.0689	4.4066	.079	88.012	1.000	1.000
BB3	407	5.358	-5.9732	1.716	-.3331	.608	.335	.000	.000	5.0715	4.4140	.079	88.090	1.000	1.000

BB3	408	6.301	-6.0161	1.772	-.3840	.635	.365	.000	.000	5.0736	4.4212	.079	88.169	1.000	1.000
BB3	409	7.240	-5.9108	1.837	-.4348	.665	.392	.000	.000	5.0755	4.4281	.079	88.247	1.000	1.000
BB3	410	8.151	-5.6600	1.909	-.4857	.697	.417	.000	.000	5.0771	4.4348	.079	88.326	1.000	1.000
BB3	411	9.011	-5.2698	1.989	-.5365	.731	.440	.000	.000	5.0785	4.4412	.079	88.404	1.000	1.000
BB3	412	9.799	-4.7498	2.077	-.5874	.766	.460	.000	.000	5.0799	4.4474	.079	88.483	1.000	1.000
BB3	413	10.497	-4.1129	2.174	-.6382	.803	.476	.000	.000	5.0811	4.4533	.079	88.562	1.000	1.000
BB3	414	11.086	-3.3748	2.278	-.6891	.841	.490	.000	.000	5.0823	4.4589	.079	88.640	1.000	1.000
BB3	415	11.553	-2.5535	2.390	-.7399	.880	.501	.000	.000	5.0834	4.4642	.079	88.719	1.000	1.000
BB3	416	11.885	-1.6693	2.510	-.7908	.919	.509	.000	.000	5.0844	4.4693	.079	88.797	1.000	1.000
BB3	417	12.075	-.7441	2.639	-.8416	.960	.514	.000	.000	5.0855	4.4742	.079	88.876	1.000	1.000
BB4	418	12.118	.1995	2.775	-.9305	1.000	.516	.000	.000	5.0865	4.4788	.079	88.954	1.000	1.000
D2	419	11.917	.1501	4.070	-1.3178	1.297	.516	.000	.000	5.0941	4.5062	.576	89.530	1.000	1.000
QT22	420	11.932	-.2534	4.459	-1.2724	1.378	.560	.000	.000	5.0961	4.5118	.150	89.680	1.000	1.000
D3	421	12.092	-.2801	5.275	-1.4486	1.545	.560	.000	.000	5.1001	4.5217	.300	89.980	1.000	1.000
S4	422	12.178	-.2935	5.723	-1.5367	1.629	.560	.000	.000	5.1021	4.5260	.150	90.130	1.000	1.000
D3	423	12.362	-.3203	6.698	-1.7129	1.797	.560	.000	.000	5.1060	4.5337	.300	90.430	1.000	1.000
B2A	424	12.506	-1.0883	6.807	-1.0701	1.833	.618	.000	.000	5.1066	4.5349	.051	90.481	1.000	1.000
B2B	425	12.585	-.4514	6.917	-1.0863	1.861	.472	.000	.000	5.1073	4.5361	.051	90.533	1.000	1.000
B2B	426	12.599	.1903	7.029	-1.1024	1.881	.325	.000	.000	5.1079	4.5373	.051	90.584	1.000	1.000
B2B	427	12.546	.8300	7.143	-1.1186	1.894	.176	.000	.000	5.1086	4.5385	.051	90.635	1.000	1.000
B2B	428	12.429	1.4609	7.259	-1.1348	1.899	.028	.000	.000	5.1092	4.5396	.051	90.687	1.000	1.000
B2B	429	12.247	2.0765	7.376	-1.1509	1.897	-.121	.000	.000	5.1099	4.5407	.051	90.738	1.000	1.000
B2B	430	12.003	2.6702	7.495	-1.1671	1.887	-.269	.000	.000	5.1106	4.5418	.051	90.789	1.000	1.000
B2B	431	11.700	3.2360	7.615	-1.1832	1.869	-.417	.000	.000	5.1113	4.5429	.051	90.840	1.000	1.000
B2B	432	11.341	3.7677	7.738	-1.1994	1.844	-.563	.000	.000	5.1120	4.5439	.051	90.892	1.000	1.000
B2C	433	10.929	3.0279	7.861	-.4422	1.811	-.504	.000	.000	5.1127	4.5450	.051	90.943	1.000	1.000
D1	434	4.453	1.7729	9.331	-.6473	1.132	-.504	.000	.000	5.1437	4.5702	1.349	92.292	1.000	1.000
D1F	435	4.453	1.7729	9.331	-.6473	1.132	-.504	.000	.000	5.1437	4.5702	.000	92.292	1.000	1.000
QT21	436	3.936	1.6733	9.543	-.7670	1.055	-.515	.000	.000	5.1494	4.5727	.150	92.442	1.000	1.000
D1A	437	3.019	1.3837	10.018	-.8169	.901	-.515	.000	.000	5.1632	4.5776	.300	92.742	1.000	1.000
S3	438	2.626	1.2389	10.267	-.8419	.823	-.515	.000	.000	5.1717	4.5799	.150	92.892	1.000	1.000
D2F	439	2.626	1.2389	10.267	-.8419	.823	-.515	.000	.000	5.1717	4.5799	.000	92.892	1.000	1.000
D1	440	1.040	-.0633	12.841	-1.0663	.129	-.515	.000	.000	5.3237	4.5987	1.349	94.241	1.000	1.000
B1A	441	1.067	-.2595	12.720	1.1768	.105	-.445	.000	.000	5.3314	4.5993	.051	94.292	1.000	1.000
B1B	442	1.093	-.2547	12.599	1.1672	.083	-.399	.000	.000	5.3390	4.6000	.051	94.343	1.000	1.000
B1B	443	1.119	-.2473	12.480	1.1576	.064	-.351	.000	.000	5.3464	4.6006	.051	94.394	1.000	1.000
B1B	444	1.144	-.2373	12.362	1.1480	.047	-.303	.000	.000	5.3536	4.6013	.051	94.446	1.000	1.000
B1B	445	1.167	-.2247	12.245	1.1384	.033	-.254	.000	.000	5.3606	4.6019	.051	94.497	1.000	1.000
B1B	446	1.190	-.2099	12.129	1.1288	.021	-.204	.000	.000	5.3676	4.6026	.051	94.548	1.000	1.000
B1B	447	1.210	-.1928	12.013	1.1192	.012	-.153	.000	.000	5.3744	4.6033	.051	94.600	1.000	1.000
B1B	448	1.229	-.1737	11.899	1.1095	.005	-.102	.000	.000	5.3811	4.6040	.051	94.651	1.000	1.000
B1B	449	1.246	-.1527	11.786	1.0999	.001	-.051	.000	.000	5.3876	4.6046	.051	94.702	1.000	1.000

B1C	450	1.261	-.3704	11.673	3.1383	.000	.000	.000	.000	5.3942	4.6053	.051	94.753	1.000	1.000
D0S	451	1.527	-.6147	10.042	2.8867	.000	.000	.000	.000	5.4254	4.6093	.271	95.024	1.000	1.000
QB	452	1.648	-.9968	9.475	4.6440	.000	.000	.000	.000	5.4330	4.6105	.075	95.099	1.000	1.000
QB	453	1.829	-1.4365	8.662	6.1352	.000	.000	.000	.000	5.4399	4.6119	.075	95.174	1.000	1.000
D0P1	454	3.575	-2.2332	3.835	4.0134	.000	.000	.000	.000	5.4696	4.6250	.476	95.650	1.000	1.000
QE1	455	4.276	-2.4426	2.736	3.3178	.000	.000	.000	.000	5.4757	4.6324	.150	95.800	1.000	1.000
D0P2	456	11.632	-4.2367	.751	-1.5159	.000	.000	.000	.000	5.5007	4.9930	1.101	96.901	1.000	1.000
QE2	457	11.105	7.5693	1.481	-3.5930	.000	.000	.000	.000	5.5027	5.0163	.150	97.051	1.000	1.000
D0P1	458	5.092	5.0724	7.024	-8.0619	.000	.000	.000	.000	5.5128	5.0398	.476	97.527	1.000	1.000
QE3	459	4.513	-.9754	8.116	1.2468	.000	.000	.000	.000	5.5180	5.0429	.150	97.677	1.000	1.000
DI1P	460	5.572	-1.1871	6.970	1.0927	.000	.000	.000	.000	5.5335	5.0533	.490	98.166	1.000	1.000
IBUMP1	461	6.057	-.3945	6.521	.2764	-.010	-.087	.000	.000	5.5394	5.0584	.215	98.382	1.000	1.000
DI2	462	6.457	-.4817	6.303	.2009	-.050	-.087	.000	.000	5.5511	5.0697	.457	98.839	1.000	1.000
IBUMP2	463	7.066	-.9578	5.832	.8638	-.050	.087	.000	.000	5.5612	5.0810	.430	99.269	1.000	1.000
DI2	464	7.999	-1.0819	5.104	.7269	-.010	.087	.000	.000	5.5708	5.0944	.457	99.727	1.000	1.000
IBUMP3	465	8.030	.0612	5.048	.0979	.000	.000	.000	.000	5.5751	5.1011	.215	99.942	1.000	1.000
DI1	466	8.000	.0000	5.000	.0000	.000	.000	.000	.000	5.5848	5.1167	.490	100.431	1.000	1.000
DDPB	467	8.125	-.1250	5.200	-.2000	.000	.000	.000	.000	5.6046	5.1481	1.000	101.431	1.000	1.000
DA1	468	8.294	-.1918	5.471	-.3068	.000	.000	.000	.000	5.6150	5.1640	.534	101.966	1.000	1.000
AC21	469	8.581	-.2143	5.969	-.4018	.000	.000	.000	.000	5.6282	5.1836	.700	102.666	1.000	1.000
DA2	470	8.602	-.2204	6.009	-.4115	.000	.000	.000	.000	5.6291	5.1849	.050	102.716	1.000	1.000
AC22	471	8.915	-.2225	6.640	-.4858	.000	.000	.000	.000	5.6418	5.2025	.700	103.416	1.000	1.000
DA3	472	9.145	-.2767	7.127	-.5716	.000	.000	.000	.000	5.6500	5.2132	.461	103.876	1.000	1.000
AC23	473	9.516	-.2468	7.958	-.6081	.000	.000	.000	.000	5.6619	5.2280	.700	104.576	1.000	1.000
DA2	474	9.541	-.2524	8.019	-.6167	.000	.000	.000	.000	5.6627	5.2290	.050	104.626	1.000	1.000
AC24	475	9.848	-.1789	8.878	-.6007	.000	.000	.000	.000	5.6742	5.2422	.700	105.326	1.000	1.000
DA3	476	10.035	-.2271	9.464	-.6713	.000	.000	.000	.000	5.6816	5.2502	.461	105.787	1.000	1.000
AC25	477	10.262	-.0858	10.338	-.5624	.000	.000	.000	.000	5.6925	5.2614	.700	106.487	1.000	1.000
DA2	478	10.271	-.0907	10.395	-.5688	.000	.000	.000	.000	5.6933	5.2622	.050	106.537	1.000	1.000
AC26	479	10.242	.1488	11.038	-.3259	.000	.000	.000	.000	5.7041	5.2726	.700	107.237	1.000	1.000
DA3	480	10.127	.1028	11.359	-.3721	.000	.000	.000	.000	5.7113	5.2791	.461	107.697	1.000	1.000
AC27	481	9.729	.4900	11.575	.1016	.000	.000	.000	.000	5.7225	5.2888	.700	108.397	1.000	1.000
DA2	482	9.680	.4836	11.565	.0972	.000	.000	.000	.000	5.7233	5.2895	.050	108.447	1.000	1.000
AC28	483	8.587	1.1132	10.875	.9472	.000	.000	.000	.000	5.7354	5.2993	.700	109.147	1.000	1.000
DA1	484	7.473	.9739	9.913	.8540	.000	.000	.000	.000	5.7460	5.3075	.534	109.681	1.000	1.000
FIXD	485	7.473	.9739	9.913	.8540	.000	.000	.000	.000	5.7460	5.3075	.000	109.681	1.000	1.000
DDPA	486	5.786	.7131	8.380	.6796	.000	.000	.000	.000	5.7703	5.3250	1.000	110.681	1.000	1.000

MAXIMUM LATTICE FUNCTIONS :

BETA X = .1583232630E+02 BETA Y = .1722665983E+02
ETA X = .1899111057E+01 ETA Y = .6950582848E-14

Table 2 presents a hardware definition and machine layout for the IR FEL driver. We note that dipole positions and parameters will not change. Main quadrupole positions and lengths will not change, but excitations may change as new tunings are developed. Trim quadrupole and sextupole lengths will not change, but positions and excitations are likely to change as machine lattice studies progress.

Table 2: Element Definitions and Machine Layout for IR FEL Driver

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VALUES ARE FOR ENERGY :    .420E-01 GEV

ELEMENT:QA
HALF APERTURE=    .02500000(M)  LENGTH=    .07500000(M)              STRENGTH=   4.69208382(/M**2)
FOCAL LENGTH=   .2854204E+01(M) POLE TIP INDUCTION=    .16433662(KG)  INTEGRATED STRENGTH=    .35190629(/M)
TILT ANGLE =       .000000000(DEG)

ELEMENT:QB
HALF APERTURE=    .02500000(M)  LENGTH=    .07500000(M)              STRENGTH=  -2.55925217(/M**2)
FOCAL LENGTH=   .5222376E+01(M) POLE TIP INDUCTION=   -.08963584(KG)  INTEGRATED STRENGTH=   -.19194391(/M)
TILT ANGLE =       .000000000(DEG)

ELEMENT:QAP
HALF APERTURE=    .02500000(M)  LENGTH=    .07500000(M)              STRENGTH=   4.69208382(/M**2)
FOCAL LENGTH=   .2854204E+01(M) POLE TIP INDUCTION=    .16433662(KG)  INTEGRATED STRENGTH=    .35190629(/M)
TILT ANGLE =       .000000000(DEG)

ELEMENT:QBP
HALF APERTURE=    .02500000(M)  LENGTH=    .07500000(M)              STRENGTH=   4.69208382(/M**2)
FOCAL LENGTH=   .2854204E+01(M) POLE TIP INDUCTION=    .16433662(KG)  INTEGRATED STRENGTH=    .35190629(/M)
TILT ANGLE =       .000000000(DEG)

ELEMENT:QE1
HALF APERTURE=   1.00000000(M)  LENGTH=    .15000000(M)              STRENGTH=    .06527167(/M**2)
FOCAL LENGTH=   .1021622E+03(M) POLE TIP INDUCTION=    .09144360(KG)  INTEGRATED STRENGTH=    .00979075(/M)
TILT ANGLE =       .000000000(DEG)

ELEMENT:QE2
HALF APERTURE=   1.00000000(M)  LENGTH=    .15000000(M)              STRENGTH=   6.86536783(/M**2)
FOCAL LENGTH=   .9965155E+00(M) POLE TIP INDUCTION=   9.61816888(KG)  INTEGRATED STRENGTH=   1.02980518(/M)
TILT ANGLE =       .000000000(DEG)
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ELEMENT:QE3
HALF APERTURE=   1.00000000(M)  LENGTH=    .15000000(M)              STRENGTH=  -8.32118310(/M**2)
FOCAL LENGTH=   .8267252E+00(M) POLE TIP INDUCTION= -11.65772122(KG)  INTEGRATED STRENGTH=  -1.24817746(/M)
TILT ANGLE =       .000000000(DEG)

ELEMENT:B1
HALFGAP=    .02578100(M)  BENDING ANGLE=  29.37888389(DEG)  BENDING RADIUS=       1.00000000(M.)
LENGTH=   .5127583E+00(M) INDUCTION=   1.40096920(KG)
FIELD INDEX N=        .0000       FIELD INDEX BETA=        .0000
ENTRANCE ANGLE= 10.79114549(DEG) ENTRANCE CURVATURE=       .000000000(/M)
EXIT ANGLE = 10.79114549(DEG)    EXIT CURVATURE=       .000000000(/M)
TILT ANGLE =       .000000000(DEG)

ELEMENT:B2
HALFGAP=    .02578100(M)  BENDING ANGLE=  29.37888389(DEG)  BENDING RADIUS=       1.00000000(M.)
LENGTH=   .5127583E+00(M) INDUCTION=   1.40096920(KG)
FIELD INDEX N=        .0000       FIELD INDEX BETA=        .0000
ENTRANCE ANGLE=  6.43127965(DEG) ENTRANCE CURVATURE=       .000000000(/M)
EXIT ANGLE =  6.43127965(DEG)    EXIT CURVATURE=       .000000000(/M)
TILT ANGLE =    180.000000000(DEG)

ELEMENT:B1A
HALFGAP=    .02578100(M)  BENDING ANGLE=   2.93788839(DEG)  BENDING RADIUS=       1.00000000(M.)
LENGTH=   .5127583E-01(M) INDUCTION=   1.40096920(KG)
FIELD INDEX N=        .0000       FIELD INDEX BETA=        .0000
ENTRANCE ANGLE= 10.79114549(DEG) ENTRANCE CURVATURE=       .000000000(/M)
EXIT ANGLE =   .00000000(DEG)    EXIT CURVATURE=       .000000000(/M)
TILT ANGLE =       .000000000(DEG)

ELEMENT:B1B
HALFGAP=    .00000000(M)  BENDING ANGLE=   2.93788839(DEG)  BENDING RADIUS=       1.00000000(M.)
LENGTH=   .5127583E-01(M) INDUCTION=   1.40096920(KG)
FIELD INDEX N=        .0000       FIELD INDEX BETA=        .0000
ENTRANCE ANGLE=   .00000000(DEG) ENTRANCE CURVATURE=       .000000000(/M)
EXIT ANGLE =   .00000000(DEG)    EXIT CURVATURE=       .000000000(/M)
TILT ANGLE =       .000000000(DEG)

ELEMENT:B1C
HALFGAP=    .00000000(M)  BENDING ANGLE=   2.93788839(DEG)  BENDING RADIUS=       1.00000000(M.)
LENGTH=   .5127583E-01(M) INDUCTION=   1.40096920(KG)
FIELD INDEX N=        .0000       FIELD INDEX BETA=        .0000
ENTRANCE ANGLE=   .00000000(DEG) ENTRANCE CURVATURE=       .000000000(/M)
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EXIT ANGLE = 10.79114549(DEG)    EXIT CURVATURE=       .000000000(/M)
TILT ANGLE =       .000000000(DEG)

ELEMENT:B2A
HALFGAP=    .02578100(M)  BENDING ANGLE=   2.93788839(DEG)  BENDING RADIUS=       1.00000000(M.)
LENGTH=   .5127583E-01(M) INDUCTION=   1.40096920(KG)
FIELD INDEX N=        .0000       FIELD INDEX BETA=        .0000
ENTRANCE ANGLE=  6.43127965(DEG) ENTRANCE CURVATURE=       .000000000(/M)
EXIT ANGLE =   .00000000(DEG)    EXIT CURVATURE=       .000000000(/M)
TILT ANGLE =    180.000000000(DEG)

ELEMENT:B2B
HALFGAP=    .00000000(M)  BENDING ANGLE=   2.93788839(DEG)  BENDING RADIUS=       1.00000000(M.)
LENGTH=   .5127583E-01(M) INDUCTION=   1.40096920(KG)
FIELD INDEX N=        .0000       FIELD INDEX BETA=        .0000
ENTRANCE ANGLE=   .00000000(DEG) ENTRANCE CURVATURE=       .000000000(/M)
EXIT ANGLE =   .00000000(DEG)    EXIT CURVATURE=       .000000000(/M)
TILT ANGLE =    180.000000000(DEG)

ELEMENT:B2C
HALFGAP=    .00000000(M)  BENDING ANGLE=   2.93788839(DEG)  BENDING RADIUS=       1.00000000(M.)
LENGTH=   .5127583E-01(M) INDUCTION=   1.40096920(KG)
FIELD INDEX N=        .0000       FIELD INDEX BETA=        .0000
ENTRANCE ANGLE=   .00000000(DEG) ENTRANCE CURVATURE=       .000000000(/M)
EXIT ANGLE =  6.43127965(DEG)    EXIT CURVATURE=       .000000000(/M)
TILT ANGLE =    180.000000000(DEG)

ELEMENT:BB1
HALFGAP=    .02540000(M)  BENDING ANGLE=   4.50000000(DEG)  BENDING RADIUS=       1.00000000(M.)
LENGTH=   .7853982E-01(M) INDUCTION=   1.40096920(KG)
FIELD INDEX N=        .0000       FIELD INDEX BETA=        .0000
ENTRANCE ANGLE=   .00000000(DEG) ENTRANCE CURVATURE=       .000000000(/M)
EXIT ANGLE =   .00000000(DEG)    EXIT CURVATURE=       .000000000(/M)
TILT ANGLE =       .000000000(DEG)

ELEMENT:BB2
HALFGAP=    .00000000(M)  BENDING ANGLE=   4.50000000(DEG)  BENDING RADIUS=       1.00000000(M.)
LENGTH=   .7853982E-01(M) INDUCTION=   1.40096920(KG)
FIELD INDEX N=        .0000       FIELD INDEX BETA=        .0000
ENTRANCE ANGLE=   .00000000(DEG) ENTRANCE CURVATURE=       .000000000(/M)
EXIT ANGLE =   .00000000(DEG)    EXIT CURVATURE=       .000000000(/M)
TILT ANGLE =       .000000000(DEG)
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ELEMENT:BB3
HALFGAP=    .00000000(M)  BENDING ANGLE=   4.50000000(DEG)  BENDING RADIUS=       1.00000000(M.)
LENGTH=   .7853982E-01(M)  INDUCTION=   1.40096920(KG)
FIELD INDEX N=        .0000       FIELD INDEX BETA=        .0000
ENTRANCE ANGLE=   .00000000(DEG) ENTRANCE CURVATURE=       .000000000(/M)
EXIT ANGLE =   .00000000(DEG)    EXIT CURVATURE=       .000000000(/M)
TILT ANGLE =       .000000000(DEG)

ELEMENT:BB4
HALFGAP=    .00000000(M)  BENDING ANGLE=   4.50000000(DEG)  BENDING RADIUS=       1.00000000(M.)
LENGTH=   .7853982E-01(M)  INDUCTION=   1.40096920(KG)
FIELD INDEX N=        .0000       FIELD INDEX BETA=        .0000
ENTRANCE ANGLE=   .00000000(DEG) ENTRANCE CURVATURE=       .000000000(/M)
EXIT ANGLE =   .00000000(DEG)    EXIT CURVATURE=       .000000000(/M)
TILT ANGLE =       .000000000(DEG)

ELEMENT:S1
HALF APERTURE=    .07500000(M)        LENGTH=    .15000000(M.)  STRENGTH=  -6.38864162(/M**3)
POLE TIP INDUCTION=   -.05034538(KG)  INTEGRATED STRENGTH=   -.95829624(/M**2)
TILT ANGLE =       .000000000(DEG)

ELEMENT:S2
HALF APERTURE=    .07500000(M)        LENGTH=    .15000000(M.)  STRENGTH=   5.19095410(/M**3)
POLE TIP INDUCTION=    .04090706(KG)  INTEGRATED STRENGTH=    .77864311(/M**2)
TILT ANGLE =       .000000000(DEG)

ELEMENT:S3
HALF APERTURE=    .07500000(M)        LENGTH=    .15000000(M.)  STRENGTH=  -6.38864162(/M**3)
POLE TIP INDUCTION=   -.05034538(KG)  INTEGRATED STRENGTH=   -.95829624(/M**2)
TILT ANGLE =       .000000000(DEG)

ELEMENT:S4
HALF APERTURE=    .07500000(M)        LENGTH=    .15000000(M.)  STRENGTH=   5.19095410(/M**3)
POLE TIP INDUCTION=    .04090706(KG)  INTEGRATED STRENGTH=    .77864311(/M**2)
TILT ANGLE =       .000000000(DEG)

ELEMENT:QT11
HALF APERTURE=    .07500000(M)  LENGTH=    .15000000(M)              STRENGTH=    .06769758(/M**2)
FOCAL LENGTH=   .9850219E+02(M) POLE TIP INDUCTION=    .00711317(KG)  INTEGRATED STRENGTH=    .01015464(/M)
TILT ANGLE =       .000000000(DEG)
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ELEMENT:QT12
HALF APERTURE=    .07500000(M)  LENGTH=    .15000000(M)              STRENGTH=   -.21859812(/M**2)
FOCAL LENGTH=   .3052238E+02(M) POLE TIP INDUCTION=   -.02296869(KG)  INTEGRATED STRENGTH=   -.03278972(/M)
TILT ANGLE =       .000000000(DEG)

ELEMENT:QT21
HALF APERTURE=    .07500000(M)  LENGTH=    .15000000(M)              STRENGTH=    .06769758(/M**2)
FOCAL LENGTH=   .9850219E+02(M) POLE TIP INDUCTION=    .00711317(KG)  INTEGRATED STRENGTH=    .01015464(/M)
TILT ANGLE =       .000000000(DEG)

ELEMENT:QT22
HALF APERTURE=    .07500000(M)  LENGTH=    .15000000(M)              STRENGTH=   -.21859812(/M**2)
FOCAL LENGTH=   .3052238E+02(M) POLE TIP INDUCTION=   -.02296869(KG)  INTEGRATED STRENGTH=   -.03278972(/M)
TILT ANGLE =       .000000000(DEG)

ELEMENT:QM11
HALF APERTURE=    .02500000(M)  LENGTH=    .15000000(M)              STRENGTH=  -6.00000000(/M**2)
FOCAL LENGTH=   .1136511E+01(M) POLE TIP INDUCTION=   -.21014538(KG)  INTEGRATED STRENGTH=   -.90000000(/M)
TILT ANGLE =       .000000000(DEG)

ELEMENT:QM12
HALF APERTURE=    .02500000(M)  LENGTH=    .15000000(M)              STRENGTH=   6.00000000(/M**2)
FOCAL LENGTH=   .1136511E+01(M) POLE TIP INDUCTION=    .21014538(KG)  INTEGRATED STRENGTH=    .90000000(/M)
TILT ANGLE =       .000000000(DEG)

ELEMENT:QM13
HALF APERTURE=    .02500000(M)  LENGTH=    .15000000(M)              STRENGTH=  -1.60049227(/M**2)
FOCAL LENGTH=   .4190491E+01(M) POLE TIP INDUCTION=   -.05605601(KG)  INTEGRATED STRENGTH=   -.24007384(/M)
TILT ANGLE =       .000000000(DEG)

ELEMENT:QM14
HALF APERTURE=    .02500000(M)  LENGTH=    .15000000(M)              STRENGTH=  -4.67376284(/M**2)
FOCAL LENGTH=   .1451713E+01(M) POLE TIP INDUCTION=   -.16369494(KG)  INTEGRATED STRENGTH=   -.70106443(/M)
TILT ANGLE =       .000000000(DEG)

ELEMENT:QM15
HALF APERTURE=    .02500000(M)  LENGTH=    .15000000(M)              STRENGTH=  10.91335286(/M**2)
FOCAL LENGTH=   .6366077E+00(M) POLE TIP INDUCTION=    .38223178(KG)  INTEGRATED STRENGTH=   1.63700293(/M)
TILT ANGLE =       .000000000(DEG)

ELEMENT:QM16
HALF APERTURE=    .02500000(M)  LENGTH=    .15000000(M)              STRENGTH=  -7.19503689(/M**2)
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FOCAL LENGTH=   .9520450E+00(M) POLE TIP INDUCTION=   -.25200063(KG)  INTEGRATED STRENGTH=  -1.07925553(/M)
TILT ANGLE =       .000000000(DEG)

ELEMENT:QM21
HALF APERTURE=    .02500000(M)  LENGTH=    .07500000(M)              STRENGTH=  -2.35393457(/M**2)
FOCAL LENGTH=   .5676795E+01(M) POLE TIP INDUCTION=   -.08244475(KG)  INTEGRATED STRENGTH=   -.17654509(/M)
TILT ANGLE =       .000000000(DEG)

ELEMENT:QM22
HALF APERTURE=    .02500000(M)  LENGTH=    .15000000(M)              STRENGTH=  -3.88639890(/M**2)
FOCAL LENGTH=   .1740641E+01(M) POLE TIP INDUCTION=   -.13611813(KG)  INTEGRATED STRENGTH=   -.58295984(/M)
TILT ANGLE =       .000000000(DEG)

ELEMENT:QM23
HALF APERTURE=    .02500000(M)  LENGTH=    .15000000(M)              STRENGTH=   4.84236972(/M**2)
FOCAL LENGTH=   .1402058E+01(M) POLE TIP INDUCTION=    .16960027(KG)  INTEGRATED STRENGTH=    .72635546(/M)
TILT ANGLE =       .000000000(DEG)

ELEMENT:QM24
HALF APERTURE=    .02500000(M)  LENGTH=    .15000000(M)              STRENGTH=  -8.00000000(/M**2)
FOCAL LENGTH=   .8588685E+00(M) POLE TIP INDUCTION=   -.28019384(KG)  INTEGRATED STRENGTH=  -1.20000000(/M)
TILT ANGLE =       .000000000(DEG)

ELEMENT:QM25
HALF APERTURE=    .02500000(M)  LENGTH=    .15000000(M)              STRENGTH=  12.77894777(/M**2)
FOCAL LENGTH=   .5475562E+00(M) POLE TIP INDUCTION=    .44757281(KG)  INTEGRATED STRENGTH=   1.91684217(/M)
TILT ANGLE =       .000000000(DEG)

ELEMENT:QM26
HALF APERTURE=    .02500000(M)  LENGTH=    .15000000(M)              STRENGTH= -16.82976077(/M**2)
FOCAL LENGTH=   .4222740E+00(M) POLE TIP INDUCTION=   -.58944941(KG)  INTEGRATED STRENGTH=  -2.52446412(/M)
TILT ANGLE =       .000000000(DEG)

ELEMENT:BBUMP1
HALFGAP=    .02686050(M)  BENDING ANGLE=  22.10700000(DEG)  BENDING RADIUS=       1.06287586(M.)
LENGTH=   .4101000E+00(M)  INDUCTION=   1.31809297(KG)
FIELD INDEX N=         .0000       FIELD INDEX BETA=        .0000
ENTRANCE ANGLE= 11.05350000(DEG) ENTRANCE CURVATURE=       .000000000(/M)
EXIT ANGLE = 11.05350000(DEG)    EXIT CURVATURE=       .000000000(/M)
TILT ANGLE =    180.000000000(DEG)

ELEMENT:BBUMP2
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HALFGAP=    .02686050(M)  BENDING ANGLE=  22.10700000(DEG)  BENDING RADIUS=       1.06287586(M.)
LENGTH=   .4101000E+00(M)  INDUCTION=   1.31809297(KG)
FIELD INDEX N=        .0000       FIELD INDEX BETA=        .0000
ENTRANCE ANGLE= 11.05350000(DEG) ENTRANCE CURVATURE=       .000000000(/M)
EXIT ANGLE = 11.05350000(DEG)    EXIT CURVATURE=       .000000000(/M)
TILT ANGLE =       .000000000(DEG)

ELEMENT:BBUMP3
HALFGAP=    .02686050(M)  BENDING ANGLE=  22.10700000(DEG)  BENDING RADIUS=       1.06287586(M.)
LENGTH=   .4101000E+00(M)  INDUCTION=   1.31809297(KG)
FIELD INDEX N=        .0000       FIELD INDEX BETA=        .0000
ENTRANCE ANGLE= 11.05350000(DEG) ENTRANCE CURVATURE=       .000000000(/M)
EXIT ANGLE = 11.05350000(DEG)    EXIT CURVATURE=       .000000000(/M)
TILT ANGLE =       .000000000(DEG)

ELEMENT:BBUMP4
HALFGAP=    .02686050(M)  BENDING ANGLE=  22.10700000(DEG)  BENDING RADIUS=       1.06287586(M.)
LENGTH=   .4101000E+00(M)  INDUCTION=   1.31809297(KG)
FIELD INDEX N=        .0000       FIELD INDEX BETA=        .0000
ENTRANCE ANGLE= 11.05350000(DEG) ENTRANCE CURVATURE=       .000000000(/M)
EXIT ANGLE = 11.05350000(DEG)    EXIT CURVATURE=       .000000000(/M)
TILT ANGLE =    180.000000000(DEG)

ELEMENT:IBUMP1
HALFGAP=    .02540000(M)  BENDING ANGLE=   5.07536285(DEG)  BENDING RADIUS=       2.42935520(M.)
LENGTH=   .2151966E+00(M)  INDUCTION=    .57668356(KG)
FIELD INDEX N=        .0000       FIELD INDEX BETA=        .0000
ENTRANCE ANGLE=   .00000000(DEG) ENTRANCE CURVATURE=       .000000000(/M)
EXIT ANGLE =-14.92463715(DEG)    EXIT CURVATURE=       .000000000(/M)
TILT ANGLE =    180.000000000(DEG)

ELEMENT:IBUMP2
HALFGAP=    .02540000(M)  BENDING ANGLE=  10.15072570(DEG)  BENDING RADIUS=       2.42935520(M.)
LENGTH=   .4303933E+00(M)  INDUCTION=    .57668356(KG)
FIELD INDEX N=        .0000       FIELD INDEX BETA=        .0000
ENTRANCE ANGLE=  8.93296598(DEG) ENTRANCE CURVATURE=      -.078099518(/M)
EXIT ANGLE =  8.93296598(DEG)    EXIT CURVATURE=      -.078099518(/M)
TILT ANGLE =       .000000000(DEG)

ELEMENT:IBUMP3
HALFGAP=    .02540000(M)  BENDING ANGLE=   5.07536285(DEG)  BENDING RADIUS=       2.42935520(M.)
LENGTH=   .2151966E+00(M)  INDUCTION=    .57668356(KG)
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FIELD INDEX N=        .0000       FIELD INDEX BETA=        .0000
ENTRANCE ANGLE=-14.92463715(DEG) ENTRANCE CURVATURE=       .000000000(/M)
EXIT ANGLE =   .00000000(DEG)    EXIT CURVATURE=       .000000000(/M)
TILT ANGLE =    180.000000000(DEG)

ELEMENT:DBUMP1
HALFGAP=    .02540000(M)  BENDING ANGLE=   5.07536285(DEG)  BENDING RADIUS=       2.42935520(M.)
LENGTH=   .2151966E+00(M)  INDUCTION=    .57668356(KG)
FIELD INDEX N=        .0000       FIELD INDEX BETA=        .0000
ENTRANCE ANGLE=   .00000000(DEG) ENTRANCE CURVATURE=       .000000000(/M)
EXIT ANGLE =-14.92463715(DEG)    EXIT CURVATURE=       .000000000(/M)
TILT ANGLE =       .000000000(DEG)

ELEMENT:DBUMP2
HALFGAP=    .02540000(M)  BENDING ANGLE=  10.15072570(DEG)  BENDING RADIUS=       2.42935520(M.)
LENGTH=   .4303933E+00(M)  INDUCTION=    .57668356(KG)
FIELD INDEX N=        .0000       FIELD INDEX BETA=        .0000
ENTRANCE ANGLE=  8.93296598(DEG) ENTRANCE CURVATURE=      -.078099518(/M)
EXIT ANGLE =  8.93296598(DEG)    EXIT CURVATURE=      -.078099518(/M)
TILT ANGLE =    180.000000000(DEG)

ELEMENT:DBUMP3
HALFGAP=    .02540000(M)  BENDING ANGLE=   5.07536285(DEG)  BENDING RADIUS=       2.42935520(M.)
LENGTH=   .2151966E+00(M)  INDUCTION=    .57668356(KG)
FIELD INDEX N=        .0000       FIELD INDEX BETA=        .0000
ENTRANCE ANGLE=-14.92463715(DEG) ENTRANCE CURVATURE=       .000000000(/M)
EXIT ANGLE =   .00000000(DEG)    EXIT CURVATURE=       .000000000(/M)
TILT ANGLE =       .000000000(DEG)

ELEMENT:QB1
HALF APERTURE=    .02500000(M)  LENGTH=    .07500000(M)              STRENGTH=  -3.42449981(/M**2)
FOCAL LENGTH=   .3906041E+01(M) POLE TIP INDUCTION=   -.11994047(KG)  INTEGRATED STRENGTH=   -.25683749(/M)
TILT ANGLE =       .000000000(DEG)

ELEMENT:QB2
HALF APERTURE=    .02500000(M)  LENGTH=    .07500000(M)              STRENGTH=   3.42449981(/M**2)
FOCAL LENGTH=   .3906041E+01(M) POLE TIP INDUCTION=    .11994047(KG)  INTEGRATED STRENGTH=    .25683749(/M)
TILT ANGLE =       .000000000(DEG)

ELEMENT:QB3
HALF APERTURE=    .02500000(M)  LENGTH=    .07500000(M)              STRENGTH=  -3.42449981(/M**2)
FOCAL LENGTH=   .3906041E+01(M) POLE TIP INDUCTION=   -.11994047(KG)  INTEGRATED STRENGTH=   -.25683749(/M)
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TILT ANGLE =        .000000000(DEG)

ELEMENT:QB4
HALF APERTURE=    .02500000(M)  LENGTH=    .07500000(M)              STRENGTH=   3.42449981(/M**2)
FOCAL LENGTH=   .3906041E+01(M) POLE TIP INDUCTION=    .11994047(KG)  INTEGRATED STRENGTH=    .25683749(/M)
TILT ANGLE =        .000000000(DEG)

ELEMENT:QB5
HALF APERTURE=    .02500000(M)  LENGTH=    .07500000(M)              STRENGTH=  -3.42449981(/M**2)
FOCAL LENGTH=   .3906041E+01(M) POLE TIP INDUCTION=   -.11994047(KG)  INTEGRATED STRENGTH=   -.25683749(/M)
TILT ANGLE =        .000000000(DEG)

ELEMENT:QB6
HALF APERTURE=    .02500000(M)  LENGTH=    .07500000(M)              STRENGTH=   3.42449981(/M**2)
FOCAL LENGTH=   .3906041E+01(M) POLE TIP INDUCTION=    .11994047(KG)  INTEGRATED STRENGTH=    .25683749(/M)
TILT ANGLE =        .000000000(DEG)

ELEMENT:QB7
HALF APERTURE=    .02500000(M)  LENGTH=    .07500000(M)              STRENGTH=  -3.42449981(/M**2)
FOCAL LENGTH=   .3906041E+01(M) POLE TIP INDUCTION=   -.11994047(KG)  INTEGRATED STRENGTH=   -.25683749(/M)
TILT ANGLE =        .000000000(DEG)

ELEMENT:QB8
HALF APERTURE=    .02500000(M)  LENGTH=    .07500000(M)              STRENGTH=   3.42449981(/M**2)
FOCAL LENGTH=   .3906041E+01(M) POLE TIP INDUCTION=    .11994047(KG)  INTEGRATED STRENGTH=    .25683749(/M)
TILT ANGLE =        .000000000(DEG)

ELEMENT:QB9
HALF APERTURE=    .02500000(M)  LENGTH=    .07500000(M)              STRENGTH=  -3.42449981(/M**2)
FOCAL LENGTH=   .3906041E+01(M) POLE TIP INDUCTION=   -.11994047(KG)  INTEGRATED STRENGTH=   -.25683749(/M)
TILT ANGLE =        .000000000(DEG)

ELEMENT:QB10
HALF APERTURE=    .02500000(M)  LENGTH=    .07500000(M)              STRENGTH=   3.42449981(/M**2)
FOCAL LENGTH=   .3906041E+01(M) POLE TIP INDUCTION=    .11994047(KG)  INTEGRATED STRENGTH=    .25683749(/M)
TILT ANGLE =        .000000000(DEG)

ELEMENT:QB11
HALF APERTURE=    .02500000(M)  LENGTH=    .07500000(M)              STRENGTH=  -3.42449981(/M**2)
FOCAL LENGTH=   .3906041E+01(M) POLE TIP INDUCTION=   -.11994047(KG)  INTEGRATED STRENGTH=   -.25683749(/M)
TILT ANGLE =        .000000000(DEG)
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ELEMENT:QB12
HALF APERTURE=    .02500000(M)  LENGTH=    .07500000(M)              STRENGTH=   3.42449981(/M**2)
FOCAL LENGTH=   .3906041E+01(M) POLE TIP INDUCTION=    .11994047(KG)  INTEGRATED STRENGTH=    .25683749(/M)
TILT ANGLE =       .000000000(DEG)

ELEMENT:QB13
HALF APERTURE=    .02500000(M)  LENGTH=    .07500000(M)              STRENGTH=  -3.42449981(/M**2)
FOCAL LENGTH=   .3906041E+01(M) POLE TIP INDUCTION=   -.11994047(KG)  INTEGRATED STRENGTH=   -.25683749(/M)
TILT ANGLE =       .000000000(DEG)

ELEMENT:BWPA
HALFGAP=    .00000000(M)  BENDING ANGLE=    .81987366(DEG)  BENDING RADIUS=        .47173087(M.)
LENGTH=   .6750230E-02(M) INDUCTION=   2.96984848(KG)
FIELD INDEX N=        .0000       FIELD INDEX BETA=        .0000
ENTRANCE ANGLE=   .00000000(DEG) ENTRANCE CURVATURE=       .000000000(/M)
EXIT ANGLE =   .81987366(DEG)    EXIT CURVATURE=       .000000000(/M)
TILT ANGLE =     90.000000000(DEG)

ELEMENT:BWPB
HALFGAP=    .00000000(M)  BENDING ANGLE=  -1.63974731(DEG)  BENDING RADIUS=       -.47173087(M.)
LENGTH=   .1350046E-01(M) INDUCTION=  -2.96984848(KG)
FIELD INDEX N=        .0000       FIELD INDEX BETA=        .0000
ENTRANCE ANGLE=  -.81987366(DEG) ENTRANCE CURVATURE=       .000000000(/M)
EXIT ANGLE =  -.81987366(DEG)    EXIT CURVATURE=       .000000000(/M)
TILT ANGLE =     90.000000000(DEG)

ELEMENT:BWPD
HALFGAP=    .00000000(M)  BENDING ANGLE=    .81987366(DEG)  BENDING RADIUS=        .47173087(M.)
LENGTH=   .6750230E-02(M) INDUCTION=   2.96984848(KG)
FIELD INDEX N=        .0000       FIELD INDEX BETA=        .0000
ENTRANCE ANGLE=   .81987366(DEG) ENTRANCE CURVATURE=       .000000000(/M)
EXIT ANGLE =   .00000000(DEG)    EXIT CURVATURE=       .000000000(/M)
TILT ANGLE =     90.000000000(DEG)
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THE LENGTHS ARE MEASURED IN METERS ,THE ANGLES IN DEGREES

THE SXYZ COORDINATES,AZIMUTH,ELEVATION AND ROLL ANGLES ARE :

#	NAME	S	X	Y	Z	THETA	PHI	PSI	ALPHA	
1	DDPB	1.00000	.00000	.00000	1.00000	.00000	.00000	.00000	.00000	R
2	DA1	1.53410	.00000	.00000	1.53410	.00000	.00000	.00000	.00000	R

3	AC11	2.23410	.00000	.00000	2.23410	.00000	.00000	.00000	.00000	R
4	DA2	2.28410	.00000	.00000	2.28410	.00000	.00000	.00000	.00000	R
5	AC12	2.98410	.00000	.00000	2.98410	.00000	.00000	.00000	.00000	R
6	DA3	3.44470	.00000	.00000	3.44470	.00000	.00000	.00000	.00000	R
7	AC13	4.14470	.00000	.00000	4.14470	.00000	.00000	.00000	.00000	R
8	DA2	4.19470	.00000	.00000	4.19470	.00000	.00000	.00000	.00000	R
9	AC14	4.89470	.00000	.00000	4.89470	.00000	.00000	.00000	.00000	R
10	DA3	5.35530	.00000	.00000	5.35530	.00000	.00000	.00000	.00000	R
11	AC15	6.05530	.00000	.00000	6.05530	.00000	.00000	.00000	.00000	R
12	DA2	6.10530	.00000	.00000	6.10530	.00000	.00000	.00000	.00000	R
13	AC16	6.80530	.00000	.00000	6.80530	.00000	.00000	.00000	.00000	R
14	DA3	7.26590	.00000	.00000	7.26590	.00000	.00000	.00000	.00000	R
15	AC17	7.96590	.00000	.00000	7.96590	.00000	.00000	.00000	.00000	R
16	DA2	8.01590	.00000	.00000	8.01590	.00000	.00000	.00000	.00000	R
17	AC18	8.71590	.00000	.00000	8.71590	.00000	.00000	.00000	.00000	R
18	DA1	9.25000	.00000	.00000	9.25000	.00000	.00000	.00000	.00000	R
19	FIXU	9.25000	.00000	.00000	9.25000	.00000	.00000	.00000	.00000	R
20	DDPA	10.25000	.00000	.00000	10.25000	.00000	.00000	.00000	.00000	R
21	DGAK	10.44142	.00000	.00000	10.44142	.00000	.00000	.00000	.00000	R
22	DI1	10.93105	.00000	.00000	10.93105	.00000	.00000	.00000	.00000	R
23	DBUMP1	11.14625	-.00953	.00000	11.14597	-5.07536	.00000	.00000	.00000	R
24	DI2	11.60358	-.04998	.00000	11.60151	-5.07536	.00000	.00000	.00000	R
25	DBUMP2	12.03397	-.04998	.00000	12.03134	5.07536	.00000	.00000	.00000	R
26	DI2	12.49131	-.00953	.00000	12.48688	5.07536	.00000	.00000	.00000	R
27	DBUMP3	12.70651	.00000	.00000	12.70179	.00000	.00000	.00000	.00000	R
28	DI1	13.19613	.00000	.00000	13.19142	.00000	.00000	.00000	.00000	R
29	FITM1	13.19613	.00000	.00000	13.19142	.00000	.00000	.00000	.00000	R
30	QM11	13.34613	.00000	.00000	13.34142	.00000	.00000	.00000	.00000	R
31	DM1A	13.84613	.00000	.00000	13.84142	.00000	.00000	.00000	.00000	R
32	QM12	13.99613	.00000	.00000	13.99142	.00000	.00000	.00000	.00000	R
33	DM1A	14.49613	.00000	.00000	14.49142	.00000	.00000	.00000	.00000	R
34	QM13	14.64613	.00000	.00000	14.64142	.00000	.00000	.00000	.00000	R
35	DB1	14.94613	.00000	.00000	14.94142	.00000	.00000	.00000	.00000	R
36	BBUMP1	15.35623	.07814	.00000	15.34142	22.10700	.00000	.00000	.00000	R
37	DB2	16.00385	.32186	.00000	15.94142	22.10700	.00000	.00000	.00000	R
38	BBUMP2	16.41395	.40000	.00000	16.34142	.00000	.00000	.00000	.00000	R
39	DB3	16.76395	.40000	.00000	16.69142	.00000	.00000	.00000	.00000	R
40	DB3	17.11395	.40000	.00000	17.04142	.00000	.00000	.00000	.00000	R
41	MIRROR	17.11395	.40000	.00000	17.04142	.00000	.00000	.00000	.00000	R
42	BBUMP3	17.52405	.32186	.00000	17.44142	-22.10700	.00000	.00000	.00000	R
43	DB2	18.17166	.07814	.00000	18.04142	-22.10700	.00000	.00000	.00000	R
44	BBUMP4	18.58176	.00000	.00000	18.44142	.00000	.00000	.00000	.00000	R

45	DB1	18.88176	.00000	.00000	18.74142	.00000	.00000	.00000	.00000	R
46	QM14	19.03176	.00000	.00000	18.89142	.00000	.00000	.00000	.00000	R
47	DM1B	19.53176	.00000	.00000	19.39142	.00000	.00000	.00000	.00000	R
48	QM15	19.68176	.00000	.00000	19.54142	.00000	.00000	.00000	.00000	R
49	DM1B	20.18176	.00000	.00000	20.04142	.00000	.00000	.00000	.00000	R
50	QM16	20.33176	.00000	.00000	20.19142	.00000	.00000	.00000	.00000	R
51	DWD	20.64176	.00000	.00000	20.50142	.00000	.00000	.00000	.00000	R
52	BWPA	20.64851	.00000	-.00005	20.50817	.00000	-.81987	.00000	.00000	R
53	BWPB	20.66201	.00000	-.00005	20.52167	.00000	.81987	.00000	.00000	R
54	BWPD	20.66876	.00000	.00000	20.52842	.00000	.00000	.00000	.00000	R
55	BWPA	20.67551	.00000	-.00005	20.53517	.00000	-.81987	.00000	.00000	R
56	BWPB	20.68901	.00000	-.00005	20.54867	.00000	.81987	.00000	.00000	R
57	BWPD	20.69576	.00000	.00000	20.55542	.00000	.00000	.00000	.00000	R
58	BWPA	20.70251	.00000	-.00005	20.56217	.00000	-.81987	.00000	.00000	R
59	BWPB	20.71601	.00000	-.00005	20.57567	.00000	.81987	.00000	.00000	R
60	BWPD	20.72276	.00000	.00000	20.58242	.00000	.00000	.00000	.00000	R
61	BWPA	20.72951	.00000	-.00005	20.58917	.00000	-.81987	.00000	.00000	R
62	BWPB	20.74301	.00000	-.00005	20.60267	.00000	.81987	.00000	.00000	R
63	BWPD	20.74976	.00000	.00000	20.60942	.00000	.00000	.00000	.00000	R
64	BWPA	20.75651	.00000	-.00005	20.61617	.00000	-.81987	.00000	.00000	R
65	BWPB	20.77001	.00000	-.00005	20.62967	.00000	.81987	.00000	.00000	R
66	BWPD	20.77676	.00000	.00000	20.63642	.00000	.00000	.00000	.00000	R
67	BWPA	20.78351	.00000	-.00005	20.64317	.00000	-.81987	.00000	.00000	R
68	BWPB	20.79701	.00000	-.00005	20.65667	.00000	.81987	.00000	.00000	R
69	BWPD	20.80376	.00000	.00000	20.66342	.00000	.00000	.00000	.00000	R
70	BWPA	20.81051	.00000	-.00005	20.67017	.00000	-.81987	.00000	.00000	R
71	BWPB	20.82401	.00000	-.00005	20.68367	.00000	.81987	.00000	.00000	R
72	BWPD	20.83076	.00000	.00000	20.69042	.00000	.00000	.00000	.00000	R
73	BWPA	20.83751	.00000	-.00005	20.69717	.00000	-.81987	.00000	.00000	R
74	BWPB	20.85101	.00000	-.00005	20.71067	.00000	.81987	.00000	.00000	R
75	BWPD	20.85776	.00000	.00000	20.71742	.00000	.00000	.00000	.00000	R
76	BWPA	20.86451	.00000	-.00005	20.72417	.00000	-.81987	.00000	.00000	R
77	BWPB	20.87801	.00000	-.00005	20.73767	.00000	.81987	.00000	.00000	R
78	BWPD	20.88476	.00000	.00000	20.74442	.00000	.00000	.00000	.00000	R
79	BWPA	20.89151	.00000	-.00005	20.75117	.00000	-.81987	.00000	.00000	R
80	BWPB	20.90501	.00000	-.00005	20.76467	.00000	.81987	.00000	.00000	R
81	BWPD	20.91176	.00000	.00000	20.77142	.00000	.00000	.00000	.00000	R
82	BWPA	20.91852	.00000	-.00005	20.77817	.00000	-.81987	.00000	.00000	R
83	BWPB	20.93202	.00000	-.00005	20.79167	.00000	.81987	.00000	.00000	R
84	BWPD	20.93877	.00000	.00000	20.79842	.00000	.00000	.00000	.00000	R
85	BWPA	20.94552	.00000	-.00005	20.80517	.00000	-.81987	.00000	.00000	R
86	BWPB	20.95902	.00000	-.00005	20.81867	.00000	.81987	.00000	.00000	R

87	BWPD	20.96577	.00000	.00000	20.82542	.00000	.00000	.00000	.00000	R
88	BWPA	20.97252	.00000	-.00005	20.83217	.00000	-.81987	.00000	.00000	R
89	BWPB	20.98602	.00000	-.00005	20.84567	.00000	.81987	.00000	.00000	R
90	BWPD	20.99277	.00000	.00000	20.85242	.00000	.00000	.00000	.00000	R
91	BWPA	20.99952	.00000	-.00005	20.85917	.00000	-.81987	.00000	.00000	R
92	BWPB	21.01302	.00000	-.00005	20.87267	.00000	.81987	.00000	.00000	R
93	BWPD	21.01977	.00000	.00000	20.87942	.00000	.00000	.00000	.00000	R
94	BWPA	21.02652	.00000	-.00005	20.88617	.00000	-.81987	.00000	.00000	R
95	BWPB	21.04002	.00000	-.00005	20.89967	.00000	.81987	.00000	.00000	R
96	BWPD	21.04677	.00000	.00000	20.90642	.00000	.00000	.00000	.00000	R
97	BWPA	21.05352	.00000	-.00005	20.91317	.00000	-.81987	.00000	.00000	R
98	BWPB	21.06702	.00000	-.00005	20.92667	.00000	.81987	.00000	.00000	R
99	BWPD	21.07377	.00000	.00000	20.93342	.00000	.00000	.00000	.00000	R
100	BWPA	21.08052	.00000	-.00005	20.94017	.00000	-.81987	.00000	.00000	R
101	BWPB	21.09402	.00000	-.00005	20.95367	.00000	.81987	.00000	.00000	R
102	BWPD	21.10077	.00000	.00000	20.96042	.00000	.00000	.00000	.00000	R
103	BWPA	21.10752	.00000	-.00005	20.96717	.00000	-.81987	.00000	.00000	R
104	BWPB	21.12102	.00000	-.00005	20.98067	.00000	.81987	.00000	.00000	R
105	BWPD	21.12777	.00000	.00000	20.98742	.00000	.00000	.00000	.00000	R
106	BWPA	21.13452	.00000	-.00005	20.99417	.00000	-.81987	.00000	.00000	R
107	BWPB	21.14802	.00000	-.00005	21.00767	.00000	.81987	.00000	.00000	R
108	BWPD	21.15477	.00000	.00000	21.01442	.00000	.00000	.00000	.00000	R
109	BWPA	21.16152	.00000	-.00005	21.02117	.00000	-.81987	.00000	.00000	R
110	BWPB	21.17502	.00000	-.00005	21.03467	.00000	.81987	.00000	.00000	R
111	BWPD	21.18177	.00000	.00000	21.04142	.00000	.00000	.00000	.00000	R
112	BWPA	21.18852	.00000	-.00005	21.04817	.00000	-.81987	.00000	.00000	R
113	BWPB	21.20202	.00000	-.00005	21.06167	.00000	.81987	.00000	.00000	R
114	BWPD	21.20877	.00000	.00000	21.06842	.00000	.00000	.00000	.00000	R
115	BWPA	21.21553	.00000	-.00005	21.07517	.00000	-.81987	.00000	.00000	R
116	BWPB	21.22903	.00000	-.00005	21.08867	.00000	.81987	.00000	.00000	R
117	BWPD	21.23578	.00000	.00000	21.09542	.00000	.00000	.00000	.00000	R
118	BWPA	21.24253	.00000	-.00005	21.10217	.00000	-.81987	.00000	.00000	R
119	BWPB	21.25603	.00000	-.00005	21.11567	.00000	.81987	.00000	.00000	R
120	BWPD	21.26278	.00000	.00000	21.12242	.00000	.00000	.00000	.00000	R
121	BWPA	21.26953	.00000	-.00005	21.12917	.00000	-.81987	.00000	.00000	R
122	BWPB	21.28303	.00000	-.00005	21.14267	.00000	.81987	.00000	.00000	R
123	BWPD	21.28978	.00000	.00000	21.14942	.00000	.00000	.00000	.00000	R
124	BWPA	21.29653	.00000	-.00005	21.15617	.00000	-.81987	.00000	.00000	R
125	BWPB	21.31003	.00000	-.00005	21.16967	.00000	.81987	.00000	.00000	R
126	BWPD	21.31678	.00000	.00000	21.17642	.00000	.00000	.00000	.00000	R
127	BWPA	21.32353	.00000	-.00005	21.18317	.00000	-.81987	.00000	.00000	R
128	BWPB	21.33703	.00000	-.00005	21.19667	.00000	.81987	.00000	.00000	R

129	BWPD	21.34378	.00000	.00000	21.20342	.00000	.00000	.00000	.00000	R
130	BWPA	21.35053	.00000	-.00005	21.21017	.00000	-.81987	.00000	.00000	R
131	BWPB	21.36403	.00000	-.00005	21.22367	.00000	.81987	.00000	.00000	R
132	BWPD	21.37078	.00000	.00000	21.23042	.00000	.00000	.00000	.00000	R
133	BWPA	21.37753	.00000	-.00005	21.23717	.00000	-.81987	.00000	.00000	R
134	BWPB	21.39103	.00000	-.00005	21.25067	.00000	.81987	.00000	.00000	R
135	BWPD	21.39778	.00000	.00000	21.25742	.00000	.00000	.00000	.00000	R
136	BWPA	21.40453	.00000	-.00005	21.26417	.00000	-.81987	.00000	.00000	R
137	BWPB	21.41803	.00000	-.00005	21.27767	.00000	.81987	.00000	.00000	R
138	BWPD	21.42478	.00000	.00000	21.28442	.00000	.00000	.00000	.00000	R
139	BWPA	21.43153	.00000	-.00005	21.29117	.00000	-.81987	.00000	.00000	R
140	BWPB	21.44503	.00000	-.00005	21.30467	.00000	.81987	.00000	.00000	R
141	BWPD	21.45178	.00000	.00000	21.31142	.00000	.00000	.00000	.00000	R
142	BWPA	21.45853	.00000	-.00005	21.31817	.00000	-.81987	.00000	.00000	R
143	BWPB	21.47203	.00000	-.00005	21.33167	.00000	.81987	.00000	.00000	R
144	BWPD	21.47878	.00000	.00000	21.33842	.00000	.00000	.00000	.00000	R
145	BWPA	21.48553	.00000	-.00005	21.34517	.00000	-.81987	.00000	.00000	R
146	BWPB	21.49903	.00000	-.00005	21.35867	.00000	.81987	.00000	.00000	R
147	BWPD	21.50579	.00000	.00000	21.36542	.00000	.00000	.00000	.00000	R
148	BWPA	21.51254	.00000	-.00005	21.37217	.00000	-.81987	.00000	.00000	R
149	BWPB	21.52604	.00000	-.00005	21.38567	.00000	.81987	.00000	.00000	R
150	BWPD	21.53279	.00000	.00000	21.39242	.00000	.00000	.00000	.00000	R
151	BWPA	21.53954	.00000	-.00005	21.39917	.00000	-.81987	.00000	.00000	R
152	BWPB	21.55304	.00000	-.00005	21.41267	.00000	.81987	.00000	.00000	R
153	BWPD	21.55979	.00000	.00000	21.41942	.00000	.00000	.00000	.00000	R
154	BWPA	21.56654	.00000	-.00005	21.42617	.00000	-.81987	.00000	.00000	R
155	BWPB	21.58004	.00000	-.00005	21.43967	.00000	.81987	.00000	.00000	R
156	BWPD	21.58679	.00000	.00000	21.44642	.00000	.00000	.00000	.00000	R
157	BWPA	21.59354	.00000	-.00005	21.45317	.00000	-.81987	.00000	.00000	R
158	BWPB	21.60704	.00000	-.00005	21.46667	.00000	.81987	.00000	.00000	R
159	BWPD	21.61379	.00000	.00000	21.47342	.00000	.00000	.00000	.00000	R
160	BWPA	21.62054	.00000	-.00005	21.48017	.00000	-.81987	.00000	.00000	R
161	BWPB	21.63404	.00000	-.00005	21.49367	.00000	.81987	.00000	.00000	R
162	BWPD	21.64079	.00000	.00000	21.50042	.00000	.00000	.00000	.00000	R
163	BWPA	21.64754	.00000	-.00005	21.50717	.00000	-.81987	.00000	.00000	R
164	BWPB	21.66104	.00000	-.00005	21.52067	.00000	.81987	.00000	.00000	R
165	BWPD	21.66779	.00000	.00000	21.52742	.00000	.00000	.00000	.00000	R
166	BWPA	21.67454	.00000	-.00005	21.53417	.00000	-.81987	.00000	.00000	R
167	BWPB	21.68804	.00000	-.00005	21.54767	.00000	.81987	.00000	.00000	R
168	BWPD	21.69479	.00000	.00000	21.55442	.00000	.00000	.00000	.00000	R
169	BWPA	21.70154	.00000	-.00005	21.56117	.00000	-.81987	.00000	.00000	R
170	BWPB	21.71504	.00000	-.00005	21.57467	.00000	.81987	.00000	.00000	R

171	BWPD	21.72179	.00000	.00000	21.58142	.00000	.00000	.00000	.00000	R
172	DWD	22.03179	.00000	.00000	21.89142	.00000	.00000	.00000	.00000	R
173	QM26	22.18179	.00000	.00000	22.04142	.00000	.00000	.00000	.00000	R
174	DM1B	22.68179	.00000	.00000	22.54142	.00000	.00000	.00000	.00000	R
175	QM25	22.83179	.00000	.00000	22.69142	.00000	.00000	.00000	.00000	R
176	DM1B	23.33179	.00000	.00000	23.19142	.00000	.00000	.00000	.00000	R
177	QM24	23.48179	.00000	.00000	23.34142	.00000	.00000	.00000	.00000	R
178	DB1	23.78179	.00000	.00000	23.64142	.00000	.00000	.00000	.00000	R
179	BBUMP4	24.19189	.07814	.00000	24.04142	22.10700	.00000	.00000	.00000	R
180	DB2	24.83950	.32186	.00000	24.64142	22.10700	.00000	.00000	.00000	R
181	BBUMP3	25.24960	.40000	.00000	25.04142	.00000	.00000	.00000	.00000	R
182	MIRROR	25.24960	.40000	.00000	25.04142	.00000	.00000	.00000	.00000	R
183	DB3	25.59960	.40000	.00000	25.39142	.00000	.00000	.00000	.00000	R
184	DB3	25.94960	.40000	.00000	25.74142	.00000	.00000	.00000	.00000	R
185	BBUMP2	26.35970	.32186	.00000	26.14142	-22.10700	.00000	.00000	.00000	R
186	DB2	27.00731	.07814	.00000	26.74142	-22.10700	.00000	.00000	.00000	R
187	BBUMP4	27.41741	.00000	.00000	27.14142	.00000	.00000	.00000	.00000	R
188	DB1	27.71741	.00000	.00000	27.44142	.00000	.00000	.00000	.00000	R
189	QM23	27.86741	.00000	.00000	27.59142	.00000	.00000	.00000	.00000	R
190	DM1A	28.36741	.00000	.00000	28.09142	.00000	.00000	.00000	.00000	R
191	QM22	28.51741	.00000	.00000	28.24142	.00000	.00000	.00000	.00000	R
192	DM1A	29.01741	.00000	.00000	28.74142	.00000	.00000	.00000	.00000	R
193	QM21	29.09241	.00000	.00000	28.81642	.00000	.00000	.00000	.00000	R
194	FIT1	29.09241	.00000	.00000	28.81642	.00000	.00000	.00000	.00000	R
195	QA	29.16741	.00000	.00000	28.89142	.00000	.00000	.00000	.00000	R
196	D0	29.93817	.00000	.00000	29.66217	.00000	.00000	.00000	.00000	R
197	B1A	29.98944	-.00131	.00000	29.71343	-2.93789	.00000	.00000	.00000	R
198	B1B	30.04072	-.00525	.00000	29.76455	-5.87578	.00000	.00000	.00000	R
199	B1B	30.09199	-.01181	.00000	29.81540	-8.81367	.00000	.00000	.00000	R
200	B1B	30.14327	-.02096	.00000	29.86584	-11.75155	.00000	.00000	.00000	R
201	B1B	30.19454	-.03269	.00000	29.91575	-14.68944	.00000	.00000	.00000	R
202	B1B	30.24582	-.04695	.00000	29.96500	-17.62733	.00000	.00000	.00000	R
203	B1B	30.29710	-.06373	.00000	30.01345	-20.56522	.00000	.00000	.00000	R
204	B1B	30.34837	-.08296	.00000	30.06097	-23.50311	.00000	.00000	.00000	R
205	B1B	30.39965	-.10461	.00000	30.10745	-26.44100	.00000	.00000	.00000	R
206	B1C	30.45092	-.12861	.00000	30.15276	-29.37888	.00000	.00000	.00000	R
207	D1	31.79977	-.79032	.00000	31.32813	-29.37888	.00000	.00000	.00000	R
208	D2F	31.79977	-.79032	.00000	31.32813	-29.37888	.00000	.00000	.00000	R
209	S1	31.94977	-.86391	.00000	31.45884	-29.37888	.00000	.00000	.00000	R
210	D1A	32.24977	-1.01109	.00000	31.72026	-29.37888	.00000	.00000	.00000	R
211	QT11	32.39977	-1.08467	.00000	31.85097	-29.37888	.00000	.00000	.00000	R
212	D1F	32.39977	-1.08467	.00000	31.85097	-29.37888	.00000	.00000	.00000	R

213	D1	33.74861	-1.74639	.00000	33.02634	-29.37888	.00000	.00000	.00000	R
214	B2A	33.79989	-1.77039	.00000	33.07165	-26.44100	.00000	.00000	.00000	R
215	B2B	33.85116	-1.79204	.00000	33.11813	-23.50311	.00000	.00000	.00000	R
216	B2B	33.90244	-1.81127	.00000	33.16565	-20.56522	.00000	.00000	.00000	R
217	B2B	33.95371	-1.82804	.00000	33.21410	-17.62733	.00000	.00000	.00000	R
218	B2B	34.00499	-1.84231	.00000	33.26335	-14.68944	.00000	.00000	.00000	R
219	B2B	34.05626	-1.85404	.00000	33.31326	-11.75155	.00000	.00000	.00000	R
220	B2B	34.10754	-1.86319	.00000	33.36370	-8.81367	.00000	.00000	.00000	R
221	B2B	34.15882	-1.86974	.00000	33.41455	-5.87578	.00000	.00000	.00000	R
222	B2B	34.21009	-1.87368	.00000	33.46567	-2.93789	.00000	.00000	.00000	R
223	B2C	34.26137	-1.87500	.00000	33.51693	.00000	.00000	.00000	.00000	R
224	D3	34.56137	-1.87500	.00000	33.81693	.00000	.00000	.00000	.00000	R
225	S2	34.71137	-1.87500	.00000	33.96693	.00000	.00000	.00000	.00000	R
226	D3	35.01137	-1.87500	.00000	34.26693	.00000	.00000	.00000	.00000	R
227	QT12	35.16137	-1.87500	.00000	34.41693	.00000	.00000	.00000	.00000	R
228	D2	35.73729	-1.87500	.00000	34.99285	.00000	.00000	.00000	.00000	R
229	BB1	35.81583	-1.87808	.00000	35.07131	-4.50000	.00000	.00000	.00000	R
230	BB2	35.89437	-1.88731	.00000	35.14928	-9.00000	.00000	.00000	.00000	R
231	BB2	35.97291	-1.90263	.00000	35.22629	-13.50000	.00000	.00000	.00000	R
232	BB2	36.05145	-1.92394	.00000	35.30186	-18.00000	.00000	.00000	.00000	R
233	BB2	36.12999	-1.95112	.00000	35.37553	-22.50000	.00000	.00000	.00000	R
234	BB2	36.20853	-1.98399	.00000	35.44684	-27.00000	.00000	.00000	.00000	R
235	BB2	36.28707	-2.02236	.00000	35.51534	-31.50000	.00000	.00000	.00000	R
236	BB2	36.36561	-2.06598	.00000	35.58063	-36.00000	.00000	.00000	.00000	R
237	BB2	36.44415	-2.11459	.00000	35.64229	-40.50000	.00000	.00000	.00000	R
238	BB2	36.52269	-2.16789	.00000	35.69995	-45.00000	.00000	.00000	.00000	R
239	BB2	36.60123	-2.22555	.00000	35.75325	-49.50000	.00000	.00000	.00000	R
240	BB2	36.67977	-2.28721	.00000	35.80186	-54.00000	.00000	.00000	.00000	R
241	BB2	36.75831	-2.35250	.00000	35.84549	-58.50000	.00000	.00000	.00000	R
242	BB2	36.83685	-2.42101	.00000	35.88385	-63.00000	.00000	.00000	.00000	R
243	BB2	36.91538	-2.49231	.00000	35.91673	-67.50000	.00000	.00000	.00000	R
244	BB2	36.99392	-2.56598	.00000	35.94390	-72.00000	.00000	.00000	.00000	R
245	BB2	37.07246	-2.64155	.00000	35.96522	-76.50000	.00000	.00000	.00000	R
246	BB2	37.15100	-2.71856	.00000	35.98053	-81.00000	.00000	.00000	.00000	R
247	BB2	37.22954	-2.79654	.00000	35.98976	-85.50000	.00000	.00000	.00000	R
248	BB2	37.30808	-2.87500	.00000	35.99285	-90.00000	.00000	.00000	.00000	R
249	MID1	37.30808	-2.87500	.00000	35.99285	-90.00000	.00000	.00000	.00000	R
250	BB3	37.38662	-2.95346	.00000	35.98976	-94.50000	.00000	.00000	.00000	R
251	BB3	37.46516	-3.03143	.00000	35.98053	-99.00000	.00000	.00000	.00000	R
252	BB3	37.54370	-3.10844	.00000	35.96522	-103.50000	.00000	.00000	.00000	R
253	BB3	37.62224	-3.18402	.00000	35.94390	-108.00000	.00000	.00000	.00000	R
254	BB3	37.70078	-3.25768	.00000	35.91673	-112.50000	.00000	.00000	.00000	R

255	BB3	37.77932	-3.32899	.00000	35.88385	-117.00000	.00000	.00000	.00000	R
256	BB3	37.85786	-3.39750	.00000	35.84549	-121.50000	.00000	.00000	.00000	R
257	BB3	37.93640	-3.46278	.00000	35.80186	-126.00000	.00000	.00000	.00000	R
258	BB3	38.01494	-3.52445	.00000	35.75325	-130.50000	.00000	.00000	.00000	R
259	BB3	38.09348	-3.58210	.00000	35.69995	-135.00000	.00000	.00000	.00000	R
260	BB3	38.17202	-3.63540	.00000	35.64229	-139.50000	.00000	.00000	.00000	R
261	BB3	38.25056	-3.68402	.00000	35.58063	-144.00000	.00000	.00000	.00000	R
262	BB3	38.32910	-3.72764	.00000	35.51534	-148.50000	.00000	.00000	.00000	R
263	BB3	38.40764	-3.76600	.00000	35.44684	-153.00000	.00000	.00000	.00000	R
264	BB3	38.48618	-3.79888	.00000	35.37553	-157.50000	.00000	.00000	.00000	R
265	BB3	38.56472	-3.82605	.00000	35.30186	-162.00000	.00000	.00000	.00000	R
266	BB3	38.64326	-3.84737	.00000	35.22629	-166.50000	.00000	.00000	.00000	R
267	BB3	38.72180	-3.86269	.00000	35.14928	-171.00000	.00000	.00000	.00000	R
268	BB3	38.80034	-3.87192	.00000	35.07131	-175.50000	.00000	.00000	.00000	R
269	BB4	38.87888	-3.87500	.00000	34.99285	180.00000	.00000	.00000	.00000	R
270	D2	39.45480	-3.87500	.00000	34.41693	180.00000	.00000	.00000	.00000	R
271	QT12	39.60480	-3.87500	.00000	34.26693	180.00000	.00000	.00000	.00000	R
272	D3	39.90480	-3.87500	.00000	33.96693	180.00000	.00000	.00000	.00000	R
273	S2	40.05480	-3.87500	.00000	33.81693	180.00000	.00000	.00000	.00000	R
274	D3	40.35480	-3.87500	.00000	33.51693	180.00000	.00000	.00000	.00000	R
275	B2A	40.40608	-3.87631	.00000	33.46567	-177.06211	.00000	.00000	.00000	R
276	B2B	40.45735	-3.88025	.00000	33.41455	-174.12422	.00000	.00000	.00000	R
277	B2B	40.50863	-3.88681	.00000	33.36370	-171.18633	.00000	.00000	.00000	R
278	B2B	40.55990	-3.89596	.00000	33.31326	-168.24845	.00000	.00000	.00000	R
279	B2B	40.61118	-3.90768	.00000	33.26335	-165.31056	.00000	.00000	.00000	R
280	B2B	40.66246	-3.92195	.00000	33.21410	-162.37267	.00000	.00000	.00000	R
281	B2B	40.71373	-3.93873	.00000	33.16565	-159.43478	.00000	.00000	.00000	R
282	B2B	40.76501	-3.95796	.00000	33.11813	-156.49689	.00000	.00000	.00000	R
283	B2B	40.81628	-3.97960	.00000	33.07165	-153.55900	.00000	.00000	.00000	R
284	B2C	40.86756	-4.00360	.00000	33.02634	-150.62112	.00000	.00000	.00000	R
285	D1	42.21640	-4.66532	.00000	31.85097	-150.62112	.00000	.00000	.00000	R
286	D1F	42.21640	-4.66532	.00000	31.85097	-150.62112	.00000	.00000	.00000	R
287	QT11	42.36640	-4.73891	.00000	31.72026	-150.62112	.00000	.00000	.00000	R
288	D1A	42.66640	-4.88608	.00000	31.45884	-150.62112	.00000	.00000	.00000	R
289	S1	42.81640	-4.95967	.00000	31.32813	-150.62112	.00000	.00000	.00000	R
290	D2F	42.81640	-4.95967	.00000	31.32813	-150.62112	.00000	.00000	.00000	R
291	D1	44.16524	-5.62139	.00000	30.15276	-150.62112	.00000	.00000	.00000	R
292	B1A	44.21652	-5.64539	.00000	30.10745	-153.55900	.00000	.00000	.00000	R
293	B1B	44.26780	-5.66703	.00000	30.06097	-156.49689	.00000	.00000	.00000	R
294	B1B	44.31907	-5.68627	.00000	30.01345	-159.43478	.00000	.00000	.00000	R
295	B1B	44.37035	-5.70304	.00000	29.96500	-162.37267	.00000	.00000	.00000	R
296	B1B	44.42162	-5.71731	.00000	29.91575	-165.31056	.00000	.00000	.00000	R

297	B1B	44.47290	-5.72904	.00000	29.86584	-168.24845	.00000	.00000	.00000	R
298	B1B	44.52418	-5.73819	.00000	29.81540	-171.18633	.00000	.00000	.00000	R
299	B1B	44.57545	-5.74474	.00000	29.76455	-174.12422	.00000	.00000	.00000	R
300	B1B	44.62673	-5.74868	.00000	29.71343	-177.06211	.00000	.00000	.00000	R
301	B1C	44.67800	-5.75000	.00000	29.66217	180.00000	.00000	.00000	.00000	R
302	D0	45.44875	-5.75000	.00000	28.89142	180.00000	.00000	.00000	.00000	R
303	QAP	45.52375	-5.75000	.00000	28.81642	180.00000	.00000	.00000	.00000	R
304	FIT2	45.52375	-5.75000	.00000	28.81642	180.00000	.00000	.00000	.00000	R
305	QB1	45.59875	-5.75000	.00000	28.74142	180.00000	.00000	.00000	.00000	R
306	DBK1	48.25242	-5.75000	.00000	26.08775	180.00000	.00000	.00000	.00000	R
307	QB2	48.32742	-5.75000	.00000	26.01275	180.00000	.00000	.00000	.00000	R
308	QB2	48.40242	-5.75000	.00000	25.93775	180.00000	.00000	.00000	.00000	R
309	DBK1	51.05610	-5.75000	.00000	23.28408	180.00000	.00000	.00000	.00000	R
310	QB3	51.13110	-5.75000	.00000	23.20908	180.00000	.00000	.00000	.00000	R
311	FITTEMP	51.13110	-5.75000	.00000	23.20908	180.00000	.00000	.00000	.00000	R
312	QB3	51.20610	-5.75000	.00000	23.13408	180.00000	.00000	.00000	.00000	R
313	DBK1	53.85977	-5.75000	.00000	20.48041	180.00000	.00000	.00000	.00000	R
314	QB4	53.93477	-5.75000	.00000	20.40541	180.00000	.00000	.00000	.00000	R
315	QB4	54.00977	-5.75000	.00000	20.33041	180.00000	.00000	.00000	.00000	R
316	DBK1	56.66344	-5.75000	.00000	17.67674	180.00000	.00000	.00000	.00000	R
317	QB5	56.73844	-5.75000	.00000	17.60174	180.00000	.00000	.00000	.00000	R
318	QB5	56.81344	-5.75000	.00000	17.52674	180.00000	.00000	.00000	.00000	R
319	DBK1	59.46711	-5.75000	.00000	14.87307	180.00000	.00000	.00000	.00000	R
320	QB6	59.54211	-5.75000	.00000	14.79807	180.00000	.00000	.00000	.00000	R
321	QB6	59.61711	-5.75000	.00000	14.72307	180.00000	.00000	.00000	.00000	R
322	DBK1	62.27078	-5.75000	.00000	12.06940	180.00000	.00000	.00000	.00000	R
323	QB7	62.34578	-5.75000	.00000	11.99440	180.00000	.00000	.00000	.00000	R
324	FITBACK	62.34578	-5.75000	.00000	11.99440	180.00000	.00000	.00000	.00000	R
325	QB7	62.42078	-5.75000	.00000	11.91940	180.00000	.00000	.00000	.00000	R
326	DBK1	65.07445	-5.75000	.00000	9.26573	180.00000	.00000	.00000	.00000	R
327	QB8	65.14945	-5.75000	.00000	9.19073	180.00000	.00000	.00000	.00000	R
328	QB8	65.22445	-5.75000	.00000	9.11573	180.00000	.00000	.00000	.00000	R
329	DBK1	67.87812	-5.75000	.00000	6.46206	180.00000	.00000	.00000	.00000	R
330	QB9	67.95312	-5.75000	.00000	6.38706	180.00000	.00000	.00000	.00000	R
331	QB9	68.02812	-5.75000	.00000	6.31206	180.00000	.00000	.00000	.00000	R
332	DBK1	70.68179	-5.75000	.00000	3.65839	180.00000	.00000	.00000	.00000	R
333	QB10	70.75679	-5.75000	.00000	3.58339	180.00000	.00000	.00000	.00000	R
334	QB10	70.83179	-5.75000	.00000	3.50839	180.00000	.00000	.00000	.00000	R
335	DBK1	73.48546	-5.75000	.00000	.85472	180.00000	.00000	.00000	.00000	R
336	QB11	73.56046	-5.75000	.00000	.77972	180.00000	.00000	.00000	.00000	R
337	QB11	73.63546	-5.75000	.00000	.70472	180.00000	.00000	.00000	.00000	R
338	DBK1	76.28913	-5.75000	.00000	-1.94895	180.00000	.00000	.00000	.00000	R

339	QB12	76.36413	-5.75000	.00000	-2.02395	180.00000	.00000	.00000	.00000	R
340	QB12	76.43913	-5.75000	.00000	-2.09895	180.00000	.00000	.00000	.00000	R
341	DBK1	79.09280	-5.75000	.00000	-4.75262	180.00000	.00000	.00000	.00000	R
342	QB13	79.16780	-5.75000	.00000	-4.82762	180.00000	.00000	.00000	.00000	R
343	FITARC	79.16780	-5.75000	.00000	-4.82762	180.00000	.00000	.00000	.00000	R
344	QBP	79.24280	-5.75000	.00000	-4.90262	180.00000	.00000	.00000	.00000	R
345	D0	80.01355	-5.75000	.00000	-5.67337	180.00000	.00000	.00000	.00000	R
346	B1A	80.06483	-5.74868	.00000	-5.72463	177.06211	.00000	.00000	.00000	R
347	B1B	80.11610	-5.74474	.00000	-5.77574	174.12422	.00000	.00000	.00000	R
348	B1B	80.16738	-5.73819	.00000	-5.82659	171.18633	.00000	.00000	.00000	R
349	B1B	80.21865	-5.72904	.00000	-5.87704	168.24845	.00000	.00000	.00000	R
350	B1B	80.26993	-5.71731	.00000	-5.92695	165.31056	.00000	.00000	.00000	R
351	B1B	80.32120	-5.70304	.00000	-5.97620	162.37267	.00000	.00000	.00000	R
352	B1B	80.37248	-5.68627	.00000	-6.02465	159.43478	.00000	.00000	.00000	R
353	B1B	80.42376	-5.66703	.00000	-6.07217	156.49689	.00000	.00000	.00000	R
354	B1B	80.47503	-5.64539	.00000	-6.11865	153.55900	.00000	.00000	.00000	R
355	B1C	80.52631	-5.62139	.00000	-6.16395	150.62112	.00000	.00000	.00000	R
356	D1	81.87515	-4.95967	.00000	-7.33933	150.62112	.00000	.00000	.00000	R
357	D2F	81.87515	-4.95967	.00000	-7.33933	150.62112	.00000	.00000	.00000	R
358	S3	82.02515	-4.88608	.00000	-7.47004	150.62112	.00000	.00000	.00000	R
359	D1A	82.32515	-4.73891	.00000	-7.73146	150.62112	.00000	.00000	.00000	R
360	QT21	82.47515	-4.66532	.00000	-7.86217	150.62112	.00000	.00000	.00000	R
361	D1F	82.47515	-4.66532	.00000	-7.86217	150.62112	.00000	.00000	.00000	R
362	D1	83.82399	-4.00360	.00000	-9.03754	150.62112	.00000	.00000	.00000	R
363	B2A	83.87527	-3.97960	.00000	-9.08285	153.55900	.00000	.00000	.00000	R
364	B2B	83.92655	-3.95796	.00000	-9.12932	156.49689	.00000	.00000	.00000	R
365	B2B	83.97782	-3.93873	.00000	-9.17685	159.43478	.00000	.00000	.00000	R
366	B2B	84.02910	-3.92195	.00000	-9.22530	162.37267	.00000	.00000	.00000	R
367	B2B	84.08037	-3.90768	.00000	-9.27454	165.31056	.00000	.00000	.00000	R
368	B2B	84.13165	-3.89596	.00000	-9.32446	168.24845	.00000	.00000	.00000	R
369	B2B	84.18292	-3.88681	.00000	-9.37490	171.18633	.00000	.00000	.00000	R
370	B2B	84.23420	-3.88025	.00000	-9.42575	174.12422	.00000	.00000	.00000	R
371	B2B	84.28548	-3.87631	.00000	-9.47687	177.06211	.00000	.00000	.00000	R
372	B2C	84.33675	-3.87500	.00000	-9.52812	180.00000	.00000	.00000	.00000	R
373	D3	84.63675	-3.87500	.00000	-9.82812	180.00000	.00000	.00000	.00000	R
374	S4	84.78675	-3.87500	.00000	-9.97812	180.00000	.00000	.00000	.00000	R
375	D3	85.08675	-3.87500	.00000	-10.27812	180.00000	.00000	.00000	.00000	R
376	QT22	85.23675	-3.87500	.00000	-10.42812	180.00000	.00000	.00000	.00000	R
377	D2	85.81267	-3.87500	.00000	-11.00404	180.00000	.00000	.00000	.00000	R
378	BB1	85.89121	-3.87192	.00000	-11.08250	175.50000	.00000	.00000	.00000	R
379	BB2	85.96975	-3.86269	.00000	-11.16048	171.00000	.00000	.00000	.00000	R
380	BB2	86.04829	-3.84737	.00000	-11.23749	166.50000	.00000	.00000	.00000	R

381	BB2	86.12683	-3.82605	.00000	-11.31306	162.00000	.00000	.00000	.00000	R
382	BB2	86.20537	-3.79888	.00000	-11.38673	157.50000	.00000	.00000	.00000	R
383	BB2	86.28391	-3.76600	.00000	-11.45803	153.00000	.00000	.00000	.00000	R
384	BB2	86.36245	-3.72764	.00000	-11.52654	148.50000	.00000	.00000	.00000	R
385	BB2	86.44099	-3.68402	.00000	-11.59183	144.00000	.00000	.00000	.00000	R
386	BB2	86.51953	-3.63540	.00000	-11.65349	139.50000	.00000	.00000	.00000	R
387	BB2	86.59807	-3.58210	.00000	-11.71115	135.00000	.00000	.00000	.00000	R
388	BB2	86.67661	-3.52445	.00000	-11.76445	130.50000	.00000	.00000	.00000	R
389	BB2	86.75515	-3.46278	.00000	-11.81306	126.00000	.00000	.00000	.00000	R
390	BB2	86.83369	-3.39750	.00000	-11.85668	121.50000	.00000	.00000	.00000	R
391	BB2	86.91223	-3.32899	.00000	-11.89505	117.00000	.00000	.00000	.00000	R
392	BB2	86.99077	-3.25768	.00000	-11.92792	112.50000	.00000	.00000	.00000	R
393	BB2	87.06931	-3.18402	.00000	-11.95510	108.00000	.00000	.00000	.00000	R
394	BB2	87.14785	-3.10844	.00000	-11.97641	103.50000	.00000	.00000	.00000	R
395	BB2	87.22639	-3.03143	.00000	-11.99173	99.00000	.00000	.00000	.00000	R
396	BB2	87.30493	-2.95346	.00000	-12.00096	94.50000	.00000	.00000	.00000	R
397	BB2	87.38347	-2.87500	.00000	-12.00404	90.00000	.00000	.00000	.00000	R
398	MID2	87.38347	-2.87500	.00000	-12.00404	90.00000	.00000	.00000	.00000	R
399	BB3	87.46201	-2.79654	.00000	-12.00096	85.50000	.00000	.00000	.00000	R
400	BB3	87.54055	-2.71856	.00000	-11.99173	81.00000	.00000	.00000	.00000	R
401	BB3	87.61909	-2.64155	.00000	-11.97641	76.50000	.00000	.00000	.00000	R
402	BB3	87.69763	-2.56598	.00000	-11.95510	72.00000	.00000	.00000	.00000	R
403	BB3	87.77617	-2.49231	.00000	-11.92792	67.50000	.00000	.00000	.00000	R
404	BB3	87.85471	-2.42101	.00000	-11.89505	63.00000	.00000	.00000	.00000	R
405	BB3	87.93325	-2.35250	.00000	-11.85668	58.50000	.00000	.00000	.00000	R
406	BB3	88.01179	-2.28721	.00000	-11.81306	54.00000	.00000	.00000	.00000	R
407	BB3	88.09033	-2.22555	.00000	-11.76445	49.50000	.00000	.00000	.00000	R
408	BB3	88.16887	-2.16789	.00000	-11.71115	45.00000	.00000	.00000	.00000	R
409	BB3	88.24741	-2.11459	.00000	-11.65349	40.50000	.00000	.00000	.00000	R
410	BB3	88.32595	-2.06598	.00000	-11.59183	36.00000	.00000	.00000	.00000	R
411	BB3	88.40449	-2.02236	.00000	-11.52654	31.50000	.00000	.00000	.00000	R
412	BB3	88.48303	-1.98399	.00000	-11.45803	27.00000	.00000	.00000	.00000	R
413	BB3	88.56157	-1.95112	.00000	-11.38673	22.50000	.00000	.00000	.00000	R
414	BB3	88.64011	-1.92394	.00000	-11.31306	18.00000	.00000	.00000	.00000	R
415	BB3	88.71865	-1.90263	.00000	-11.23749	13.50000	.00000	.00000	.00000	R
416	BB3	88.79719	-1.88731	.00000	-11.16048	9.00000	.00000	.00000	.00000	R
417	BB3	88.87572	-1.87808	.00000	-11.08250	4.50000	.00000	.00000	.00000	R
418	BB4	88.95426	-1.87500	.00000	-11.00404	.00000	.00000	.00000	.00000	R
419	D2	89.53018	-1.87500	.00000	-10.42812	.00000	.00000	.00000	.00000	R
420	QT22	89.68018	-1.87500	.00000	-10.27812	.00000	.00000	.00000	.00000	R
421	D3	89.98018	-1.87500	.00000	-9.97812	.00000	.00000	.00000	.00000	R
422	S4	90.13018	-1.87500	.00000	-9.82812	.00000	.00000	.00000	.00000	R

423	D3	90.43018	-1.87500	.00000	-9.52812	.00000	.00000	.00000	.00000	R
424	B2A	90.48146	-1.87368	.00000	-9.47687	2.93789	.00000	.00000	.00000	R
425	B2B	90.53274	-1.86974	.00000	-9.42575	5.87578	.00000	.00000	.00000	R
426	B2B	90.58401	-1.86319	.00000	-9.37490	8.81367	.00000	.00000	.00000	R
427	B2B	90.63529	-1.85404	.00000	-9.32446	11.75155	.00000	.00000	.00000	R
428	B2B	90.68656	-1.84231	.00000	-9.27454	14.68944	.00000	.00000	.00000	R
429	B2B	90.73784	-1.82804	.00000	-9.22530	17.62733	.00000	.00000	.00000	R
430	B2B	90.78912	-1.81127	.00000	-9.17685	20.56522	.00000	.00000	.00000	R
431	B2B	90.84039	-1.79204	.00000	-9.12932	23.50311	.00000	.00000	.00000	R
432	B2B	90.89167	-1.77039	.00000	-9.08285	26.44100	.00000	.00000	.00000	R
433	B2C	90.94294	-1.74639	.00000	-9.03754	29.37888	.00000	.00000	.00000	R
434	D1	92.29179	-1.08467	.00000	-7.86217	29.37888	.00000	.00000	.00000	R
435	D1F	92.29179	-1.08467	.00000	-7.86217	29.37888	.00000	.00000	.00000	R
436	QT21	92.44179	-1.01109	.00000	-7.73146	29.37888	.00000	.00000	.00000	R
437	D1A	92.74179	-.86391	.00000	-7.47004	29.37888	.00000	.00000	.00000	R
438	S3	92.89179	-.79032	.00000	-7.33933	29.37888	.00000	.00000	.00000	R
439	D2F	92.89179	-.79032	.00000	-7.33933	29.37888	.00000	.00000	.00000	R
440	D1	94.24063	-.12861	.00000	-6.16395	29.37888	.00000	.00000	.00000	R
441	B1A	94.29190	-.10461	.00000	-6.11865	26.44100	.00000	.00000	.00000	R
442	B1B	94.34318	-.08296	.00000	-6.07217	23.50311	.00000	.00000	.00000	R
443	B1B	94.39446	-.06373	.00000	-6.02465	20.56522	.00000	.00000	.00000	R
444	B1B	94.44573	-.04695	.00000	-5.97620	17.62733	.00000	.00000	.00000	R
445	B1B	94.49701	-.03269	.00000	-5.92695	14.68944	.00000	.00000	.00000	R
446	B1B	94.54828	-.02096	.00000	-5.87704	11.75155	.00000	.00000	.00000	R
447	B1B	94.59956	-.01181	.00000	-5.82659	8.81367	.00000	.00000	.00000	R
448	B1B	94.65084	-.00525	.00000	-5.77574	5.87578	.00000	.00000	.00000	R
449	B1B	94.70211	-.00131	.00000	-5.72463	2.93789	.00000	.00000	.00000	R
450	B1C	94.75339	.00000	.00000	-5.67337	.00000	.00000	.00000	.00000	R
451	D0S	95.02414	.00000	.00000	-5.40262	.00000	.00000	.00000	.00000	R
452	QB	95.09914	.00000	.00000	-5.32762	.00000	.00000	.00000	.00000	R
453	QB	95.17414	.00000	.00000	-5.25262	.00000	.00000	.00000	.00000	R
454	D0P1	95.64979	.00000	.00000	-4.77696	.00000	.00000	.00000	.00000	R
455	QE1	95.79979	.00000	.00000	-4.62696	.00000	.00000	.00000	.00000	R
456	D0P2	96.90111	.00000	.00000	-3.52565	.00000	.00000	.00000	.00000	R
457	QE2	97.05111	.00000	.00000	-3.37565	.00000	.00000	.00000	.00000	R
458	D0P1	97.52676	.00000	.00000	-2.90000	.00000	.00000	.00000	.00000	R
459	QE3	97.67676	.00000	.00000	-2.75000	.00000	.00000	.00000	.00000	R
460	DI1P	98.16639	.00000	.00000	-2.26037	.00000	.00000	.00000	.00000	R
461	IBUMP1	98.38159	.00953	.00000	-2.04545	5.07536	.00000	.00000	.00000	R
462	DI2	98.83892	.04998	.00000	-1.58991	5.07536	.00000	.00000	.00000	R
463	IBUMP2	99.26931	.04998	.00000	-1.16008	-5.07536	.00000	.00000	.00000	R
464	DI2	99.72665	.00953	.00000	-.70454	-5.07536	.00000	.00000	.00000	R

465	IBUMP3	99.94184	.00000	.00000	-.48963	.00000	.00000	.00000	.00000	R
466	DI1	100.43147	.00000	.00000	.00000	.00000	.00000	.00000	.00000	R
467	DDPB	101.43147	.00000	.00000	1.00000	.00000	.00000	.00000	.00000	R
468	DA1	101.96557	.00000	.00000	1.53410	.00000	.00000	.00000	.00000	R
469	AC21	102.66557	.00000	.00000	2.23410	.00000	.00000	.00000	.00000	R
470	DA2	102.71557	.00000	.00000	2.28410	.00000	.00000	.00000	.00000	R
471	AC22	103.41557	.00000	.00000	2.98410	.00000	.00000	.00000	.00000	R
472	DA3	103.87617	.00000	.00000	3.44470	.00000	.00000	.00000	.00000	R
473	AC23	104.57617	.00000	.00000	4.14470	.00000	.00000	.00000	.00000	R
474	DA2	104.62617	.00000	.00000	4.19470	.00000	.00000	.00000	.00000	R
475	AC24	105.32617	.00000	.00000	4.89470	.00000	.00000	.00000	.00000	R
476	DA3	105.78677	.00000	.00000	5.35530	.00000	.00000	.00000	.00000	R
477	AC25	106.48677	.00000	.00000	6.05530	.00000	.00000	.00000	.00000	R
478	DA2	106.53677	.00000	.00000	6.10530	.00000	.00000	.00000	.00000	R
479	AC26	107.23677	.00000	.00000	6.80530	.00000	.00000	.00000	.00000	R
480	DA3	107.69737	.00000	.00000	7.26590	.00000	.00000	.00000	.00000	R
481	AC27	108.39737	.00000	.00000	7.96590	.00000	.00000	.00000	.00000	R
482	DA2	108.44737	.00000	.00000	8.01590	.00000	.00000	.00000	.00000	R
483	AC28	109.14737	.00000	.00000	8.71590	.00000	.00000	.00000	.00000	R
484	DA1	109.68147	.00000	.00000	9.25000	.00000	.00000	.00000	.00000	R
485	FIXD	109.68147	.00000	.00000	9.25000	.00000	.00000	.00000	.00000	R
486	DDPA	110.68147	.00000	.00000	10.25000	.00000	.00000	.00000	.00000	R

Notes and References

[1] D. Douglas, “IR FEL Driver Accelerator Design”, CEBAF-TN-96-050, 27 September 1996.

[2] D. Douglas, “Error Estimates for the IR FEL Transport System”, CEBAF-TN-96-035, 15 July 1996.

[3] Reinjection matching is required in upgraded machines, as will be discussed in a forthcoming technical note (soon to be in preparation) about a 75 MeV driver. This addition, requested by C. Rode, allows for an upgrade path that will not require removal and reinstallation of the east arc of the driver.

[4] The machine operates on the fortieth subharmonic of the fundamental RF frequency, at about 37.5 MHz. From Kevin Jordan, I learned that multipass monitoring (driving + energy recovering bunches) is perhaps most easily implemented if the machine circumference is set to $(40N \pm 18.5)\lambda_{RF}$, so that the energy-recovered bunch train falls almost, but not quite, half-way between bunches in the accelerated bunch train. Thanks, Kevin!

[5] J. Karn, Jefferson Lab Memorandum dated 26 November 1996.

[6] These were given by George Biallas (private communication) as follows:

- optical cavity chicane bends: 2.115 inches
- reverse bends: 2.030 inches
- π-bends 2.000 inches
- injection, extraction, and reinjection bends: 2.000 inches

[7] K. Jordan, private communication.

[8] See Chapter 3 of Z. Li, “Beam Dynamics in the CEBAF Superconducting Cavities” (Ph.D. Thesis, College of William and Mary, March 1995), in which this (as well as just about everything else of importance for optics in SRF based linacs) is worked out.

[9] Byung Yunn, presentation at FEL Commissioning Meeting on 26 November 1996, and private communications.

[10] These have been kindly provided by S. Benson (private communication).