1he_rev1.mad em=22nm cf=.18 bst=.63,.26m g=7.6,6.8T/m dt=3.66,4.34mr "MAD" Version: 8.21/5 Run: 07/05/97 14.35.41
Linear lattice functions. TWISS line: IRE range: #S/#E
Delta(p)/p: .000000 symm: F super: 1 page 1

ELEMENT SEQUENCE				H O R I Z O N T A L							V E R T I C A L						
pos. no.	element name	occ. no.	dist [m]	betax [m]	alfax [1]	mux [2pi]	x(co) [mm]	px(co) [.001]	Dx [m]	Dpx [1]	betay [m]	alfay [1]	muy [2pi]	y(co) [mm]	py(co) [.001]	Dy [m]	Dpy [1]
begin	IRE	1	.000	.630	.000	.000	.000	.000	.000	.000	.260	.000	.000	.000	.000	.000	.000
begin	IR0	1	.000	.630	.000	.000	.000	.000	.000	.000	.260	.000	.000	.000	.000	.000	.000
1	DR00	1	1.800	5.773	-2.857	.196	.000	.000	.000	.000	12.722	-6.923	.227	.000	.000	.000	.000
begin	QG	1	1.800	5.773	-2.857	.196	.000	.000	.000	.000	12.722	-6.923	.227	.000	.000	.000	.000
2	QG1	1	2.295	9.136	-3.980	.207	.000	.000	.000	-.001	20.192	-8.074	.232	.000	.000	.000	.000
3	QG2	1	2.790	13.751	-5.400	.214	.000	.000	-.001	-.002	28.511	-8.628	.235	.000	.000	.000	.000
4	MQG	1	2.790	13.751	-5.400	.214	.000	.000	-.001	-.002	28.511	-8.628	.235	.000	.000	.000	.000
5	QG3	1	3.285	19.962	-7.226	.219	.000	.000	-.002	-.003	37.064	-8.543	.238	.000	.000	.000	.000
6	QG4	1	3.780	28.236	-9.593	.222	.000	.000	-.004	-.004	45.217	-7.825	.240	.000	.000	.000	.000
end	QG	1	3.780	28.236	-9.593	.222	.000	.000	-.004	-.004	45.217	-7.825	.240	.000	.000	.000	.000
7	DR03	1	3.900	30.586	-9.988	.223	.000	.000	-.004	-.004	47.115	-7.991	.240	.000	.000	.000	.000
8	DR03	2	4.020	33.030	-10.384	.224	.000	.000	-.005	-.004	49.052	-8.156	.240	.000	.000	.000	.000
begin	QH	1	4.020	33.030	-10.384	.224	.000	.000	-.005	-.004	49.052	-8.156	.240	.000	.000	.000	.000
9	QH1	1	4.435	42.674	-12.945	.225	.000	.000	-.006	-.005	55.433	-7.159	.242	.000	.000	.000	.000
10	QH2	1	4.850	54.687	-16.115	.227	.000	.000	-.009	-.006	60.843	-5.827	.243	.000	.000	.000	.000
11	MQH	1	4.850	54.687	-16.115	.227	.000	.000	-.009	-.006	60.843	-5.827	.243	.000	.000	.000	.000
12	QH3	1	5.265	69.635	-20.044	.228	.000	.000	-.012	-.008	65.031	-4.224	.244	.000	.000	.000	.000
13	QH4	1	5.680	88.220	-24.914	.229	.000	.000	-.015	-.009	67.800	-2.424	.245	.000	.000	.000	.000
end	QH	1	5.680	88.220	-24.914	.229	.000	.000	-.015	-.009	67.800	-2.424	.245	.000	.000	.000	.000
14	DR05	1	5.800	94.301	-25.760	.229	.000	.000	-.016	-.009	68.384	-2.436	.245	.000	.000	.000	.000
15	DR05	2	5.920	100.585	-26.606	.229	.000	.000	-.017	-.009	68.970	-2.448	.245	.000	.000	.000	.000
begin	QI	1	5.920	100.585	-26.606	.229	.000	.000	-.017	-.009	68.970	-2.448	.245	.000	.000	.000	.000
16	QIH	1	6.370	119.748	-15.210	.230	.000	.000	-.021	-.007	75.064	-11.337	.246	.000	.000	.000	.000
17	QIH	2	6.820	126.988	-.589	.230	.000	.000	-.023	-.004	90.119	-22.718	.247	.000	.000	.000	.000
18	MQI	1	6.820	126.988	-.589	.230	.000	.000	-.023	-.004	90.119	-22.718	.247	.000	.000	.000	.000
19	QIH	3	7.270	120.770	14.157	.231	.000	.000	-.025	-.001	117.443	-39.092	.248	.000	.000	.000	.000
20	QIH	4	7.720	102.412	25.901	.232	.000	.000	-.025	.002	163.043	-64.057	.249	.000	.000	.000	.000
end	QI	1	7.720	102.412	25.901	.232	.000	.000	-.025	.002	163.043	-64.057	.249	.000	.000	.000	.000
21	DR07	1	7.920	92.314	24.589	.232	.000	.000	-.024	.002	189.672	-69.092	.249	.000	.000	.000	.000
begin	QJ	1	7.920	92.314	24.589	.232	.000	.000	-.024	.002	189.672	-69.092	.249	.000	.000	.000	.000
22	QJH	1	8.415	72.555	15.836	.233	.000	.000	-.024	.000	255.253	-61.698	.249	.000	.000	.000	.000
23	QJH	2	8.910	60.151	9.542	.234	.000	.000	-.025	-.002	308.738	-44.968	.249	.000	.000	.000	.000
24	MQJ	1	8.910	60.151	9.542	.234	.000	.000	-.025	-.002	308.738	-44.968	.249	.000	.000	.000	.000
25	QJH	3	9.405	53.175	4.730	.235	.000	.000	-.026	-.004	342.032	-21.432	.250	.000	.000	.000	.000
26	QJH	4	9.900	50.545	.651	.237	.000	.000	-.029	-.006	350.098	5.347	.250	.000	.000	.000	.000
end	QJ	1	9.900	50.545	.651	.237	.000	.000	-.029	-.006	350.098	5.347	.250	.000	.000	.000	.000
27	DR09	1	11.000	49.147	.620	.241	.000	.000	-.035	-.006	338.437	5.254	.250	.000	.000	.000	.000
end	IR0	1	11.000	49.147	.620	.241	.000	.000	-.035	-.006	338.437	5.254	.250	.000	.000	.000	.000
begin	IR1	1	11.000	49.147	.620	.241	.000	.000	-.035	-.006	338.437	5.254	.250	.000	.000	.000	.000
28	DQM	1	14.500	45.151	.522	.252	.000	.000	-.057	-.006	302.696	4.958	.252	.000	.000	.000	.000
29	DR14	1	14.700	44.943	.516	.253	.000	.000	-.058	-.006	300.716	4.941	.252	.000	.000	.000	.000
30	DQM	2	18.200	41.677	.417	.266	.000	.000	-.080	-.006	267.164	4.645	.254	.000	.000	.000	.000
31	DR18	1	19.000	41.027	.395	.269	.000	.000	-.084	-.006	259.785	4.578	.255	.000	.000	.000	.000
32	DQN	1	20.800	39.698	.344	.276	.000	.000	-.096	-.006	243.579	4.426	.256	.000	.000	.000	.000
33	DR20	1	21.000	39.561	.338	.277	.000	.000	-.097	-.006	241.813	4.409	.256	.000	.000	.000	.000
34	DQN	2	22.800	38.434	.288	.284	.000	.000	-.108	-.006	226.215	4.257	.257	.000	.000	.000	.000
35	DR22	1	23.100	38.264	.279	.286	.000	.000	-.110	-.006	223.669	4.231	.257	.000	.000	.000	.000

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1he_rev1.mad em=22nm cf=.18 bst=.63,.26m g=7.6,6.8T/m dt=3.66,4.34mr            "MAD" Version: 8.21/5    Run: 07/05/97  14.35.41
 Linear lattice functions.    TWISS               line: IRE                        range: #S/#E
 Delta(p)/p:      .000000     symm: F             super:   1                                                          page     2
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      ELEMENT SEQUENCE       I                H O R I Z O N T A L                 I                  V E R T I C A L
 pos.  element occ.     dist I   betax  alfax    mux    x(co)  px(co) Dx     Dpx  I   betay  alfay    muy    y(co)  py(co) Dy     Dpy
 no.   name    no.      [m]  I   [m]    [1]      [2pi]  [mm]   [.001] [m]    [1]  I   [m]    [1]      [2pi]  [mm]   [.001] [m]    [1]
 -----------------------------------------------------------------------------------------------------------------------------------
    36 DQN         3    24.900   37.350   .229    .293   .000    .000  -.121 -.006  208.710  4.079    .259   .000    .000   .000  .000
    37 DBO         1    25.900   36.921   .200    .297   .000    .000  -.127 -.006  200.637  3.995    .259   .000    .000   .000  .000
    38 DDBO        1    27.900   36.232   .144    .306   .000    .000  -.139 -.006  184.997  3.826    .261   .000    .000   .000  .000
    39 DR27        1    28.100   36.176   .138    .307   .000    .000  -.140 -.006  183.470  3.809    .261   .000    .000   .000  .000
 begin QK          1    28.100   36.176   .138    .307   .000    .000  -.140 -.006  183.470  3.809    .261   .000    .000   .000  .000
    40 QKH         1    28.497   36.355  -.592    .309   .000    .000  -.143 -.009  179.040  7.334    .262   .000    .000   .000  .000
    41 MQK         1    28.497   36.355  -.592    .309   .000    .000  -.143 -.009  179.040  7.334    .262   .000    .000   .000  .000
    42 QKH         2    28.893   37.119 -1.340    .310   .000    .000  -.148 -.012  171.899 10.629    .262   .000    .000   .000  .000
 end   QK          1    28.893   37.119 -1.340    .310   .000    .000  -.148 -.012  171.899 10.629    .262   .000    .000   .000  .000
    43 DR28        1    29.500   38.774 -1.386    .313   .000    .000  -.155 -.012  159.240 10.227    .263   .000    .000   .000  .000
    44 DQR         1    32.500   47.767 -1.612    .324   .000    .000  -.190 -.012  103.848  8.237    .266   .000    .000   .000  .000
    45 DI2         1    32.750   48.578 -1.631    .325   .000    .000  -.193 -.012   99.771  8.072    .267   .000    .000   .000  .000
    46 DQR         2    35.750   59.041 -1.857    .334   .000    .000  -.229 -.012   57.308  6.083    .273   .000    .000   .000  .000
    47 DI2         2    36.000   59.974 -1.876    .335   .000    .000  -.232 -.012   54.308  5.917    .274   .000    .000   .000  .000
    48 DQR         3    39.000   71.905 -2.102    .342   .000    .000  -.267 -.012   24.775  3.928    .287   .000    .000   .000  .000
    49 DR39        1    40.000   76.184 -2.177    .344   .000    .000  -.279 -.012   17.582  3.265    .294   .000    .000   .000  .000
 end   IR1         1    40.000   76.184 -2.177    .344   .000    .000  -.279 -.012   17.582  3.265    .294   .000    .000   .000  .000
 end   IRE         1    40.000   76.184 -2.177    .344   .000    .000  -.279 -.012   17.582  3.265    .294   .000    .000   .000  .000
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 total length =         40.000000         mux          =          .343950          muy          =          .294401
 delta(s)     =           .000000 mm      dmux         =        -1.862519          dmuy         =         -.699638
                                          betax(max)   =       126.987717          betay(max)   =       350.097648
                                          Dx(max)      =          .279013          Dy(max)      =          .000000
                                          Dx(r.m.s.)   =          .106570          Dy(r.m.s.)   =          .000000
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1he_rev1.mad em=22nm cf=.18 bst=.63,.26m g=7.6,6.8T/m dt=3.66,4.34mr            "MAD" Version: 8.21/5    Run: 07/05/97  14.35.41
 Survey.                      SURVEY              line: IRE                        range: #S/#E
                              symm: F             super:   1                                                          page     1
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       E L E M E N T   S E Q U E N C E       I            P O S I T I O N S             I              A N G L E S
 pos.  element occ.     sum(L)       arc      I      x             y              z        I     theta         phi           psi
 no.   name    no.      [m]          [m]      I      [m]           [m]            [m]      I     [rad]         [rad]         [rad]
 -----------------------------------------------------------------------------------------------------------------------------------
 begin IRE         1      .000000      .000000        .000000       .000000        .000000       .000000       .000000       .000000
 begin IR0         1      .000000      .000000        .000000       .000000        .000000       .000000       .000000       .000000
     1 DR00        1     1.800000     1.800000        .000000       .000000       1.800000       .000000       .000000       .000000
 begin QG          1     1.800000     1.800000        .000000       .000000       1.800000       .000000       .000000       .000000
     2 QG1         1     2.295000     2.295000       -.000216       .000000       2.295000      -.000874       .000000       .000000
     3 QG2         1     2.790000     2.790000       -.000869       .000000       2.790000      -.001764       .000000       .000000
     4 MQG         1     2.790000     2.790000       -.000869       .000000       2.790000      -.001764       .000000       .000000
     5 QG3         1     3.285000     3.285000       -.001971       .000000       3.284998      -.002687       .000000       .000000
     6 QG4         1     3.780000     3.780000       -.003542       .000000       3.779996      -.003660       .000000       .000000
 end   QG          1     3.780000     3.780000       -.003542       .000000       3.779996      -.003660       .000000       .000000
     7 DR03        1     3.900000     3.900000       -.003981       .000000       3.899995      -.003660       .000000       .000000
     8 DR03        2     4.020000     4.020000       -.004420       .000000       4.019994      -.003660       .000000       .000000
 begin QH          1     4.020000     4.020000       -.004420       .000000       4.019994      -.003660       .000000       .000000
     9 QH1         1     4.435000     4.435000       -.006145       .000000       4.434991      -.004651       .000000       .000000
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10	QH2	1	4.850000	4.850000	-.008292	.000000	4.849985	-.005696	.000000	.000000
11	MQH	1	4.850000	4.850000	-.008292	.000000	4.849985	-.005696	.000000	.000000
12	QH3	1	5.265000	5.265000	-.010886	.000000	5.264977	-.006808	.000000	.000000
13	QH4	1	5.680000	5.680000	-.013959	.000000	5.679966	-.008000	.000000	.000000
end	QH	1	5.680000	5.680000	-.013959	.000000	5.679966	-.008000	.000000	.000000
14	DR05	1	5.800000	5.800000	-.014919	.000000	5.799962	-.008000	.000000	.000000
15	DR05	2	5.920000	5.920000	-.015879	.000000	5.919958	-.008000	.000000	.000000
begin	QI	1	5.920000	5.920000	-.015879	.000000	5.919958	-.008000	.000000	.000000
16	QIH	1	6.370000	6.370000	-.019479	.000000	6.369943	-.008000	.000000	.000000
17	QIH	2	6.820000	6.820000	-.023079	.000000	6.819929	-.008000	.000000	.000000
18	MQI	1	6.820000	6.820000	-.023079	.000000	6.819929	-.008000	.000000	.000000
19	QIH	3	7.270000	7.270000	-.026679	.000000	7.269915	-.008000	.000000	.000000
20	QIH	4	7.720000	7.720000	-.030279	.000000	7.719900	-.008000	.000000	.000000
end	QI	1	7.720000	7.720000	-.030279	.000000	7.719900	-.008000	.000000	.000000
21	DR07	1	7.920000	7.920000	-.031879	.000000	7.919894	-.008000	.000000	.000000
begin	QJ	1	7.920000	7.920000	-.031879	.000000	7.919894	-.008000	.000000	.000000
22	QJH	1	8.415000	8.415000	-.035839	.000000	8.414878	-.008000	.000000	.000000
23	QJH	2	8.910000	8.910000	-.039799	.000000	8.909862	-.008000	.000000	.000000
24	MQJ	1	8.910000	8.910000	-.039799	.000000	8.909862	-.008000	.000000	.000000
25	QJH	3	9.405000	9.405000	-.043759	.000000	9.404846	-.008000	.000000	.000000
26	QJH	4	9.900000	9.900000	-.047718	.000000	9.899831	-.008000	.000000	.000000
end	QJ	1	9.900000	9.900000	-.047718	.000000	9.899831	-.008000	.000000	.000000
27	DR09	1	11.000000	11.000000	-.056518	.000000	10.999795	-.008000	.000000	.000000
end	IR0	1	11.000000	11.000000	-.056518	.000000	10.999795	-.008000	.000000	.000000
begin	IR1	1	11.000000	11.000000	-.056518	.000000	10.999795	-.008000	.000000	.000000
28	DQM	1	14.500000	14.500000	-.084518	.000000	14.499683	-.008000	.000000	.000000
29	DR14	1	14.700000	14.700000	-.086118	.000000	14.699677	-.008000	.000000	.000000
30	DQM	2	18.200000	18.200000	-.114118	.000000	18.199565	-.008000	.000000	.000000
31	DR18	1	19.000000	19.000000	-.120518	.000000	18.999539	-.008000	.000000	.000000
32	DQN	1	20.800000	20.800000	-.134918	.000000	20.799482	-.008000	.000000	.000000
33	DR20	1	21.000000	21.000000	-.136518	.000000	20.999475	-.008000	.000000	.000000
34	DQN	2	22.800000	22.800000	-.150917	.000000	22.799418	-.008000	.000000	.000000
35	DR22	1	23.100000	23.100000	-.153317	.000000	23.099408	-.008000	.000000	.000000

1he_rev1.mad em=22nm cf=.18 bst=.63,.26m g=7.6,6.8T/m dt=3.66,4.34mr "MAD" Version: 8.21/5 Run: 07/05/97 14.35.41

Survey. SURVEY line: IRE range: #S/#E

symm: F super: 1 page 2

E L E M E N T			S E Q U E N C E		P O S I T I O N S			A N G L E S		
pos. no.	element name	occ. no.	sum(L) [m]	arc [m]	x [m]	y [m]	z [m]	theta [rad]	phi [rad]	psi [rad]
36	DQN	3	24.900000	24.900000	-.167717	.000000	24.899351	-.008000	.000000	.000000
37	DBO	1	25.900000	25.900000	-.175717	.000000	25.899319	-.008000	.000000	.000000
38	DDBO	1	27.900000	27.900000	-.191717	.000000	27.899255	-.008000	.000000	.000000
39	DR27	1	28.100000	28.100000	-.193317	.000000	28.099248	-.008000	.000000	.000000
begin	QK	1	28.100000	28.100000	-.193317	.000000	28.099248	-.008000	.000000	.000000
40	QKH	1	28.496500	28.496500	-.196489	.000000	28.495735	-.008000	.000000	.000000
41	MQK	1	28.496500	28.496500	-.196489	.000000	28.495735	-.008000	.000000	.000000
42	QKH	2	28.893000	28.893000	-.199661	.000000	28.892223	-.008000	.000000	.000000
end	QK	1	28.893000	28.893000	-.199661	.000000	28.892223	-.008000	.000000	.000000
43	DR28	1	29.500000	29.500000	-.204517	.000000	29.499203	-.008000	.000000	.000000
44	DQR	1	32.500000	32.500000	-.228517	.000000	32.499107	-.008000	.000000	.000000
45	DI2	1	32.750000	32.750000	-.230517	.000000	32.749099	-.008000	.000000	.000000
46	DQR	2	35.750000	35.750000	-.254516	.000000	35.749003	-.008000	.000000	.000000
47	DI2	2	36.000000	36.000000	-.256516	.000000	35.998995	-.008000	.000000	.000000

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   48 DQR        3    39.000000    39.000000       -.280516       .000000     38.998899       -.008000       .000000       .000000
   49 DR39       1    40.000000    40.000000       -.288516       .000000     39.998867       -.008000       .000000       .000000
end   IR1        1    40.000000    40.000000       -.288516       .000000     39.998867       -.008000       .000000       .000000
end   IRE        1    40.000000    40.000000       -.288516       .000000     39.998867       -.008000       .000000       .000000
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total length =         40.000000          arc length   =        40.000000
error(x)     =          -.288516E+00      error(y)     =          .000000E+00      error(z)     =          .399989E+02
error(theta) =          -.800000E-02      error(phi)   =          .000000E+00      error(psi)   =          .000000E+00
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