1 GeV リニアック検討資料

1 GeV LINAC DESIGN NOTE

題目 (TITLE)　　CCL リニアックの寸法表

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概要 (ABSTRACT)

CCL リニアックの寸法の計算機出力をまとめた。これらは、1990年7月現在の設計である。

KEY WORDS:

Ion source, RFQ, DTL, CCL, Magnet, Monitor, Beam Dynamics,
Transport, Vacuum, Cooling
Klystron, Low level rf, High power rf, Modulator
Control, Operation, Radiation, Others

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Computer Design of CCL
900716   T. Kato

1) Main Structure

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NTK	=tank number
NC	=number of cells in the tank
BETAIN	=beta of the injected particle
CLENG	=length of the cell = hold constant in a tank
TANKLENG	= length of the tank
RF	=rf power multiplied by 1.2
ZS	=shunt impedance used for rf power calculation
PHI1	=stable phase at the first cell
PHI2	=stable phase at the last cell
EZERO	=accelerating field
PBEAM	=beam power at a current of 20 mA
SUMPOWER	=RF + PBEAM

2) Drift Spaces Between Two Tanks

RESERVE, EXTEND AND TOTAL express the drift space between two tanks in terms of the multiple of $\beta\lambda/2$. TOTAL means final results.

SPACE	=length (cm) between two tanks
BE*LAM/2	=$\beta\lambda/2$
PHA-SLIP	=phase difference between the stable phase at the last cell in the previous tank and that of the first cell in the next tank, expressed by a unit of π (radian).
SPB(J)	=space between endplate of the previous tank and the first Q magnet
SPF(J+1)	=space between endplate of the next tank and the first Q magnet

3) Details of the Design with Focusing Section

TANK	=tank number
STARTP	=total length from the end plate of the first tank
TANKLENGTH	=length of the tank
TOTWITHQ	=total length of the tank and the following drift space from the end plate of the first tank
SPACE(11)	=length of the drift space just after the tank
SPACE(12)	=focusing period
SPAC(3)	=input data for space(10)
SPAC(4)	=space between two magnets. Total length is 2*SPAC(4) for doublet
SPAC(5)	=length of the Q magnet
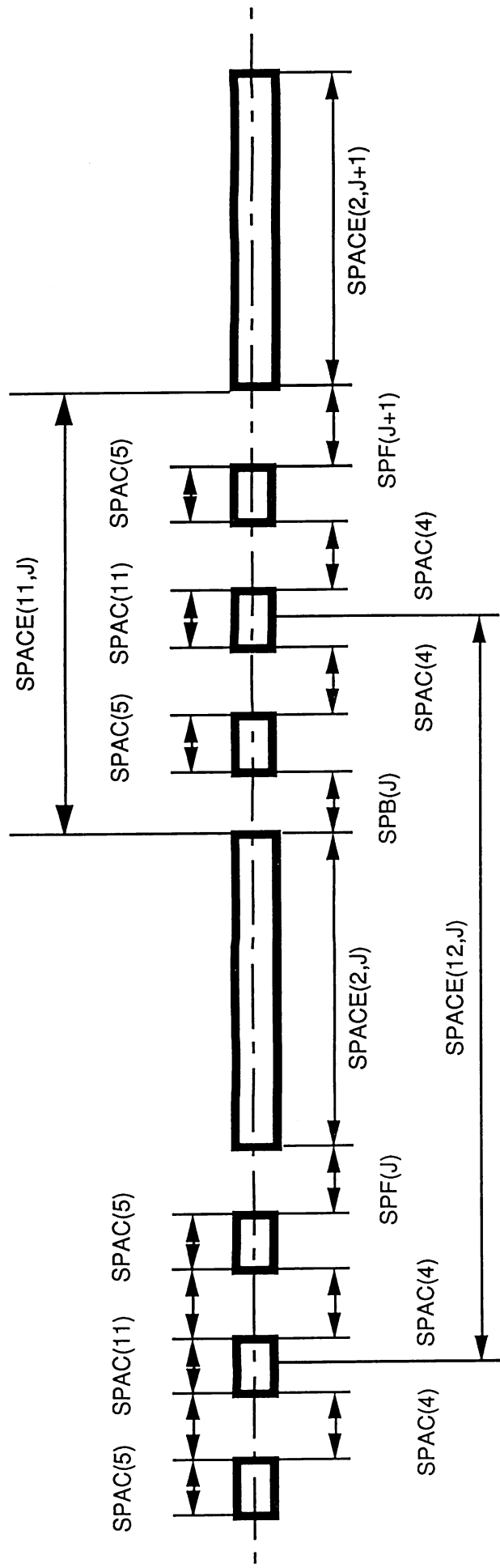
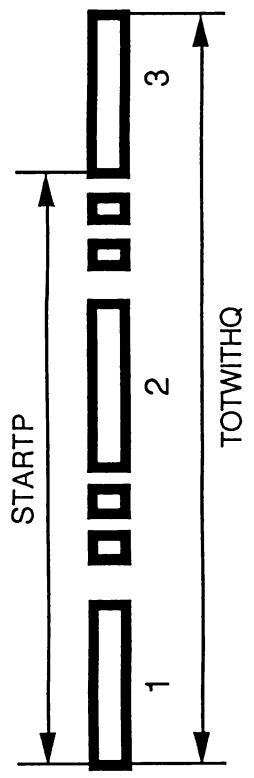SPAC(3)=INPUT DATA FOR SPACE(10,J), MODIFIED INTO SPACE(10,J)

DOUBLET, THEN SPAC(11)=0

$\quad$ SPACE(11,J)=SPB(J)+2SPAC(4)+2SPAC(5)+SPF(J+1)

$\quad$ SPACE(12,J)=2(SPAC(4)+SPAC(5))+SPF(J)+SPB(J)+SPACE(2,J)

SPACE(2,J)=TANKLENG

TOTWITHQ=THE LENGTH FROM FIRST TANK LEFT END PLATE TO J-TH TANK RIGHT END PLATE

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++++++ BEAM CURRENT = 0.020 A IS ASSUMED

NTK	N1	N2	NC	WIN MeV	BETAIN	CLENG cm	TANKLENG cm	RF MWx1.20	ZS MOHM/m	WGAIN MeV	PHI1 deg	PHI2 deg	EZERO MV/m	PBEAM	SUMPOWER
1	1	18	18	148.300	0.5043	5.8341	105.0138	0.312	52.371	2.6055	-30.00	-40.85	3.600	0.052	0.364
2	19	36	18	150.905	0.5078	5.8748	105.7466	0.311	52.810	2.6258	-30.00	-40.71	3.600	0.053	0.364
3	37	54	18	153.531	0.5113	5.9153	106.4747	0.311	53.247	2.6461	-30.00	-40.56	3.600	0.053	0.364
4	55	72	18	156.177	0.5148	5.9555	107.1982	0.311	53.680	2.6662	-30.00	-40.42	3.600	0.053	0.364
5	73	92	20	158.844	0.5183	5.9954	119.9079	0.345	54.111	2.9548	-30.00	-42.70	3.600	0.059	0.404
6	93	112	20	161.798	0.5220	6.0390	120.7802	0.344	54.582	2.9793	-30.00	-42.51	3.600	0.060	0.404
7	113	132	20	164.778	0.5258	6.0823	121.6464	0.344	55.049	3.0038	-30.00	-42.33	3.600	0.060	0.404
8	133	152	20	167.781	0.5295	6.1253	122.5066	0.343	55.513	3.0281	-30.00	-42.16	3.600	0.061	0.404
9	153	174	22	170.810	0.5332	6.1680	135.6966	0.377	55.974	3.3212	-30.00	-44.48	3.600	0.066	0.443
10	175	196	22	174.131	0.5372	6.2141	136.7108	0.376	56.472	3.3502	-30.00	-44.26	3.600	0.067	0.443
11	197	218	22	177.481	0.5411	6.2599	137.7173	0.376	56.965	3.3790	-30.00	-44.04	3.600	0.068	0.444
12	219	240	22	180.860	0.5451	6.3053	138.7159	0.375	57.455	3.4077	-30.00	-43.82	3.600	0.068	0.444
13	241	264	24	184.268	0.5490	6.3503	152.4074	0.409	57.941	3.7057	-30.00	-46.16	3.600	0.074	0.483
14	265	288	24	187.973	0.5531	6.3985	153.5633	0.409	58.421	3.7386	-30.00	-45.89	3.600	0.075	0.484
15	289	312	24	191.712	0.5573	6.4462	154.7092	0.409	58.886	3.7709	-30.00	-45.63	3.600	0.075	0.484
16	313	336	24	195.483	0.5613	6.4936	155.8452	0.408	59.347	3.8030	-30.00	-45.37	3.600	0.076	0.484
17	337	362	26	199.286	0.5654	6.5405	170.0522	0.442	59.804	4.1051	-30.00	-47.69	3.600	0.082	0.524
18	363	388	26	203.391	0.5697	6.5902	171.3458	0.442	60.288	4.1423	-30.00	-47.38	3.600	0.083	0.525
19	389	414	26	207.533	0.5740	6.6395	172.6273	0.442	60.768	4.1791	-30.00	-47.08	3.600	0.084	0.525
20	415	440	26	211.712	0.5782	6.6883	173.8967	0.442	61.243	4.2156	-30.00	-46.78	3.600	0.084	0.526
21	441	468	28	215.928	0.5824	6.7367	188.6276	0.475	61.714	4.5231	-30.00	-49.06	3.600	0.090	0.566
22	469	496	28	220.451	0.5868	6.7876	190.0535	0.475	62.210	4.5649	-30.00	-48.71	3.600	0.091	0.566
23	497	524	28	225.016	0.5911	6.8380	191.4652	0.475	62.701	4.6062	-30.00	-48.37	3.600	0.092	0.567
24	525	552	28	229.622	0.5955	6.8880	192.8627	0.475	63.187	4.6472	-30.00	-48.04	3.600	0.093	0.568
25	553	582	30	234.269	0.5997	6.9374	208.1220	0.562	63.668	5.1899	-30.00	-51.23	3.785	0.104	0.666
26	583	612	30	239.459	0.6044	6.9915	209.7443	0.562	64.158	5.2408	-30.00	-50.81	3.785	0.105	0.667
27	613	642	30	244.700	0.6090	7.0449	211.3484	0.562	64.641	5.2911	-30.00	-50.40	3.785	0.106	0.668
28	643	672	30	249.991	0.6136	7.0978	212.9345	0.562	65.118	5.3408	-30.00	-50.00	3.785	0.107	0.669
29	673	700	28	255.332	0.6181	7.1501	200.2026	0.541	65.590	5.1612	-30.00	-47.39	3.842	0.103	0.644
30	701	728	28	260.493	0.6224	7.1996	201.5884	0.541	66.036	5.2044	-30.00	-47.06	3.842	0.104	0.645
31	729	756	28	265.697	0.6266	7.2485	202.9583	0.541	66.478	5.2470	-30.00	-46.74	3.842	0.105	0.646
32	757	784	28	270.945	0.6308	7.2969	204.3125	0.541	66.915	5.2891	-30.00	-46.42	3.842	0.106	0.647
33	785	812	28	276.234	0.6349	7.3447	205.6513	0.555	67.346	5.3966	-30.00	-46.32	3.893	0.108	0.663
34	813	840	28	281.630	0.6391	7.3925	206.9903	0.555	67.778	5.4389	-30.00	-46.01	3.893	0.109	0.664
35	841	868	28	287.069	0.6432	7.4398	208.3134	0.555	68.204	5.4806	-30.00	-45.71	3.893	0.110	0.665
36	869	896	28	292.550	0.6472	7.4865	209.6206	0.555	68.626	5.5218	-30.00	-45.41	3.893	0.110	0.666
37	897	924	28	298.072	0.6512	7.5326	210.9124	0.569	69.043	5.6266	-30.00	-45.30	3.941	0.113	0.682
38	925	952	28	303.698	0.6552	7.5787	212.2028	0.569	69.463	5.6648	-30.00	-45.00	3.941	0.113	0.683
39	953	980	28	309.363	0.6591	7.6242	213.4767	0.570	69.878	5.7024	-30.00	-44.71	3.941	0.114	0.684
40	981	1008	28	315.065	0.6630	7.6691	214.7341	0.570	70.287	5.7394	-30.00	-44.43	3.941	0.115	0.684
41	1009	1034	26	320.805	0.6668	7.7134	200.5486	0.541	70.691	5.4695	-30.00	-42.36	3.988	0.109	0.651
42	1035	1060	26	326.274	0.6704	7.7549	201.6263	0.541	71.069	5.5008	-30.00	-42.14	3.988	0.110	0.652
43	1061	1086	26	331.775	0.6740	7.7958	202.6905	0.542	71.442	5.5316	-30.00	-41.92	3.988	0.111	0.652

0.653	0.111	3.988	-41.70	-30.00	5.5620	71.810	0.542	203.7412	7.8362	0.6775	337.307	26	1112	1087	44
0.666	0.113	4.030	-41.61	-30.00	5.6476	72.174	0.553	204.7790	7.8761	0.6809	342.869	26	1138	1113	45
0.666	0.114	4.030	-41.39	-30.00	5.6778	72.537	0.553	205.8135	7.9159	0.6843	348.516	26	1164	1139	46
0.667	0.114	4.030	-41.19	-30.00	5.7075	72.894	0.553	206.8348	7.9552	0.6877	354.194	26	1190	1165	47
0.668	0.115	4.030	-40.99	-30.00	5.7368	73.248	0.553	207.8429	7.9940	0.6911	359.902	26	1216	1191	48
0.680	0.116	4.069	-40.89	-30.00	5.8198	73.597	0.564	208.8384	8.0322	0.6944	365.638	26	1242	1217	49
0.681	0.117	4.069	-40.70	-30.00	5.8488	73.944	0.564	209.8299	8.0704	0.6977	371.458	26	1268	1243	50
0.682	0.118	4.069	-40.51	-30.00	5.8779	74.270	0.564	210.8086	8.1080	0.7010	377.307	26	1294	1269	51
0.683	0.118	4.069	-40.32	-30.00	5.9074	74.556	0.564	211.7746	8.1452	0.7042	383.185	26	1320	1295	52
0.694	0.120	4.103	-40.22	-30.00	5.9844	74.837	0.574	212.7284	8.1819	0.7073	389.092	26	1346	1321	53
0.695	0.120	4.103	-40.04	-30.00	6.0136	75.118	0.575	213.6773	8.2184	0.7105	395.077	26	1372	1347	54
0.696	0.121	4.103	-39.86	-30.00	6.0424	75.394	0.575	214.6139	8.2544	0.7136	401.090	26	1398	1373	55
0.697	0.121	4.103	-39.69	-30.00	6.0708	75.667	0.576	215.5384	8.2899	0.7167	407.133	26	1424	1399	56
0.707	0.123	4.133	-39.59	-30.00	6.1418	75.937	0.584	216.4510	8.3250	0.7197	413.204	26	1450	1425	57
0.708	0.123	4.133	-39.42	-30.00	6.1699	76.204	0.585	217.3578	8.3599	0.7227	419.345	26	1476	1451	58
0.709	0.124	4.133	-39.26	-30.00	6.1975	76.469	0.585	218.2528	8.3943	0.7257	425.515	26	1502	1477	59
0.710	0.124	4.133	-39.10	-30.00	6.2248	76.729	0.586	219.1361	8.4283	0.7287	431.713	26	1528	1503	60
0.665	0.117	4.162	-37.67	-30.00	5.8398	76.987	0.548	203.0842	8.4618	0.7316	437.938	24	1552	1529	61
0.666	0.117	4.162	-37.54	-30.00	5.8647	77.224	0.549	203.8263	8.4928	0.7342	443.777	24	1576	1553	62
0.667	0.118	4.162	-37.42	-30.00	5.8847	77.459	0.549	204.5593	8.5233	0.7369	449.640	24	1600	1577	63
0.667	0.118	4.162	-37.30	-30.00	5.9067	77.690	0.549	205.2831	8.5535	0.7395	455.524	24	1624	1601	64
0.675	0.119	4.187	-37.23	-30.00	5.9632	77.919	0.556	205.9981	8.5833	0.7421	461.431	24	1648	1625	65
0.676	0.120	4.187	-37.11	-30.00	5.9849	78.146	0.556	206.7083	8.6128	0.7446	467.394	24	1672	1649	66
0.677	0.120	4.187	-37.00	-30.00	6.0063	78.371	0.557	207.4096	8.6421	0.7471	473.379	24	1696	1673	67
0.678	0.121	4.187	-36.89	-30.00	6.0274	78.592	0.557	208.1022	8.6709	0.7496	479.386	24	1720	1697	68
0.685	0.122	4.210	-36.81	-30.00	6.0810	78.779	0.564	208.7862	8.6994	0.7521	485.413	24	1744	1721	69
0.686	0.122	4.210	-36.71	-30.00	6.1021	78.960	0.564	209.4653	8.7277	0.7545	491.494	24	1768	1745	70
0.687	0.122	4.210	-36.60	-30.00	6.1230	79.139	0.565	210.1359	8.7557	0.7570	497.596	24	1792	1769	71
0.688	0.123	4.210	-36.50	-30.00	6.1436	79.315	0.565	210.7982	8.7833	0.7594	503.719	24	1816	1793	72
0.695	0.124	4.229	-36.42	-30.00	6.1910	79.490	0.571	211.4523	8.8105	0.7617	509.863	24	1840	1817	73
0.696	0.124	4.229	-36.32	-30.00	6.2112	79.663	0.571	212.1010	8.8375	0.7640	516.054	24	1864	1841	74
0.697	0.125	4.229	-36.22	-30.00	6.2312	79.834	0.572	212.7416	8.8642	0.7664	522.265	24	1888	1865	75
0.697	0.125	4.229	-36.13	-30.00	6.2509	80.002	0.572	213.3742	8.8906	0.7686	528.496	24	1912	1889	76
0.704	0.126	4.247	-36.06	-30.00	6.2965	80.169	0.578	213.9989	8.9166	0.7709	534.747	24	1936	1913	77
0.705	0.126	4.247	-35.96	-30.00	6.3159	80.334	0.578	214.6184	8.9424	0.7731	541.043	24	1960	1937	78
0.705	0.127	4.247	-35.87	-30.00	6.3350	80.497	0.579	215.2301	8.9679	0.7753	547.359	24	1984	1961	79
0.706	0.127	4.247	-35.78	-30.00	6.3538	80.658	0.579	215.8342	8.9931	0.7775	553.694	24	2008	1985	80
0.712	0.128	4.264	-35.71	-30.00	6.3976	80.817	0.584	216.4308	9.0179	0.7796	560.048	24	2032	2009	81
0.713	0.128	4.264	-35.63	-30.00	6.4162	80.975	0.585	217.0222	9.0426	0.7818	566.446	24	2056	2033	82
0.714	0.129	4.264	-35.54	-30.00	6.4344	81.130	0.585	217.6062	9.0669	0.7839	572.862	24	2080	2057	83
0.715	0.129	4.264	-35.46	-30.00	6.4525	81.284	0.586	218.1829	9.0910	0.7860	579.296	24	2104	2081	84
0.661	0.119	4.281	-34.52	-30.00	5.9723	81.436	0.541	200.5231	9.1147	0.7880	585.749	22	2126	2105	85
0.662	0.120	4.281	-34.46	-30.00	5.9870	81.574	0.542	200.9992	9.1363	0.7899	591.721	22	2148	2127	86
0.662	0.120	4.281	-34.40	-30.00	6.0015	81.711	0.542	201.4698	9.1577	0.7917	597.708	22	2170	2149	87
0.663	0.120	4.281	-34.34	-30.00	6.0159	81.847	0.542	201.9350	9.1789	0.7936	603.710	22	2192	2171	88
0.667	0.121	4.295	-34.29	-30.00	6.0499	81.980	0.546	202.3949	9.1998	0.7954	609.726	22	2214	2193	89
0.668	0.121	4.295	-34.23	-30.00	6.0640	82.113	0.547	202.8509	9.2205	0.7972	615.775	22	2236	2215	90
0.669	0.122	4.295	-34.17	-30.00	6.0779	82.244	0.547	203.3017	9.2410	0.7989	621.839	22	2258	2237	91

0.669	0.122	4.295	-34.12	-30.00	6.0917	82.368	0.548	203.7473	9.2612	0.8007	627.917	22	2280	2259	92
0.674	0.122	4.308	-34.07	-30.00	6.1237	82.482	0.551	204.1878	9.2813	0.8024	634.009	22	2302	2281	93
0.674	0.123	4.308	-34.02	-30.00	6.1372	82.595	0.552	204.6245	9.3011	0.8041	640.133	22	2324	2303	94
0.675	0.123	4.308	-33.96	-30.00	6.1505	82.707	0.552	205.0561	9.3207	0.8058	646.270	22	2346	2325	95
0.676	0.123	4.308	-33.91	-30.00	6.1637	82.818	0.553	205.4829	9.3401	0.8075	652.420	22	2368	2347	96
0.680	0.124	4.320	-33.87	-30.00	6.1932	82.927	0.556	205.9047	9.3593	0.8092	658.584	22	2390	2369	97
0.680	0.124	4.320	-33.81	-30.00	6.2062	83.036	0.556	206.3228	9.3783	0.8108	664.777	22	2412	2391	98
0.681	0.124	4.320	-33.76	-30.00	6.2190	83.143	0.557	206.7361	9.3971	0.8124	670.983	22	2434	2413	99
0.682	0.125	4.320	-33.71	-30.00	6.2316	83.249	0.557	207.1447	9.4157	0.8140	677.202	22	2456	2435	100
0.686	0.125	4.331	-33.67	-30.00	6.2599	83.354	0.560	207.5486	9.4340	0.8156	683.434	22	2478	2457	101
0.686	0.125	4.331	-33.62	-30.00	6.2723	83.458	0.561	207.9489	9.4522	0.8172	689.694	22	2500	2479	102
0.687	0.126	4.331	-33.57	-30.00	6.2846	83.560	0.561	208.3446	9.4702	0.8188	695.966	22	2522	2501	103
0.687	0.126	4.331	-33.53	-30.00	6.2967	83.662	0.562	208.7359	9.4880	0.8203	702.251	22	2544	2523	104
0.691	0.126	4.341	-33.49	-30.00	6.3240	83.762	0.565	209.1227	9.5056	0.8218	708.548	22	2566	2545	105
0.692	0.127	4.341	-33.44	-30.00	6.3359	83.862	0.565	209.5060	9.5230	0.8233	714.872	22	2588	2567	106
0.692	0.127	4.341	-33.40	-30.00	6.3476	83.960	0.565	209.8849	9.5402	0.8248	721.207	22	2610	2589	107
0.693	0.127	4.341	-33.35	-30.00	6.3592	84.057	0.566	210.2596	9.5573	0.8263	727.555	22	2632	2611	108
0.696	0.128	4.351	-33.31	-30.00	6.3854	84.153	0.569	210.6300	9.5741	0.8277	733.914	22	2654	2633	109
0.697	0.128	4.351	-33.27	-30.00	6.3968	84.248	0.569	210.9970	9.5908	0.8292	740.300	22	2676	2655	110
0.698	0.128	4.351	-33.23	-30.00	6.4081	84.342	0.569	211.3600	9.6073	0.8306	746.700	22	2698	2677	111
0.698	0.128	4.351	-33.19	-30.00	6.4192	84.435	0.570	211.7188	9.6236	0.8320	753.104	22	2720	2699	112
0.701	0.129	4.361	-33.15	-30.00	6.4443	84.528	0.573	212.0736	9.6397	0.8334	759.524	22	2742	2721	113
0.702	0.129	4.361	-33.11	-30.00	6.4553	84.619	0.573	212.4251	9.6557	0.8348	765.968	22	2764	2743	114
0.703	0.130	4.361	-33.07	-30.00	6.4661	84.709	0.573	212.7727	9.6715	0.8362	772.423	22	2786	2765	115
0.703	0.130	4.361	-33.03	-30.00	6.4767	84.798	0.574	213.1164	9.6871	0.8375	778.889	22	2808	2787	116
0.706	0.130	4.370	-33.00	-30.00	6.5009	84.886	0.576	213.4563	9.7026	0.8389	785.366	22	2830	2809	117
0.707	0.130	4.370	-32.96	-30.00	6.5114	84.974	0.577	213.7931	9.7179	0.8402	791.867	22	2852	2831	118
0.707	0.130	4.370	-32.92	-30.00	6.5217	85.060	0.577	214.1261	9.7330	0.8415	798.378	22	2874	2853	119
0.708	0.131	4.370	-32.89	-30.00	6.5320	85.145	0.577	214.4553	9.7480	0.8428	804.900	22	2896	2875	120
0.711	0.131	4.379	-32.86	-30.00	6.5552	85.230	0.580	214.7810	9.7628	0.8441	811.432	22	2918	2897	121
0.712	0.131	4.379	-32.82	-30.00	6.5652	85.313	0.581	215.1036	9.7774	0.8453	817.987	22	2940	2919	122
0.712	0.132	4.379	-32.78	-30.00	6.5751	85.396	0.581	215.4227	9.7919	0.8466	824.552	22	2962	2941	123
0.712	0.132	4.379	-32.75	-30.00	6.5849	85.478	0.581	215.7382	9.8063	0.8478	831.128	22	2984	2963	124
0.715	0.132	4.388	-32.72	-30.00	6.6072	85.559	0.583	216.0502	9.8205	0.8490	837.712	22	3006	2985	125
0.716	0.133	4.388	-32.69	-30.00	6.6170	85.634	0.584	216.3594	9.8345	0.8503	844.320	22	3028	3007	126
0.717	0.133	4.388	-32.65	-30.00	6.6271	85.693	0.584	216.6652	9.8484	0.8515	850.937	22	3050	3029	127
0.717	0.134	4.388	-32.62	-30.00	6.6371	85.752	0.584	216.9676	9.8622	0.8527	857.564	22	3072	3051	128
0.720	0.134	4.394	-32.59	-30.00	6.6566	85.810	0.587	217.2667	9.8758	0.8538	864.201	22	3094	3073	129
0.720	0.134	4.394	-32.56	-30.00	6.6664	85.867	0.587	217.5631	9.8892	0.8550	870.857	22	3116	3095	130
0.721	0.134	4.394	-32.53	-30.00	6.6761	85.924	0.587	217.8561	9.9026	0.8561	877.524	22	3138	3117	131
0.722	0.134	4.394	-32.50	-30.00	6.6857	85.980	0.588	218.1460	9.9157	0.8573	884.200	22	3160	3139	132
0.724	0.134	4.400	-32.47	-30.00	6.7039	86.035	0.590	218.4328	9.9288	0.8584	890.886	22	3182	3161	133
0.725	0.134	4.400	-32.44	-30.00	6.7132	86.090	0.590	218.7169	9.9417	0.8595	897.589	22	3204	3183	134
0.725	0.134	4.400	-32.41	-30.00	6.7225	86.144	0.591	218.9978	9.9544	0.8606	904.303	22	3226	3205	135
0.726	0.135	4.400	-32.38	-30.00	6.7317	86.198	0.591	219.2758	9.9671	0.8617	911.025	22	3248	3227	136
0.728	0.135	4.405	-32.36	-30.00	6.7492	86.251	0.593	219.5507	9.9796	0.8628	917.757	22	3270	3249	137
0.728	0.135	4.405	-32.33	-30.00	6.7582	86.304	0.593	219.8231	9.9920	0.8639	924.506	22	3292	3271	138
0.729	0.135	4.405	-32.30	-30.00	6.7671	86.356	0.594	220.0925	10.0042	0.8649	931.264	22	3314	3293	139

140	3315	3336	22	938.032	0.8660	10.0163	220.3591	0.594	86.408	6.7760	-30.00	-32.27	4.405	0.136	0.729
141	3337	3356	20	944.808	0.8670	10.0283	200.5661	0.542	86.459	6.1836	-30.00	-31.85	4.411	0.124	0.665
142	3357	3376	20	950.991	0.8680	10.0391	200.7824	0.542	86.505	6.1907	-30.00	-31.83	4.411	0.124	0.666
143	3377	3396	20	957.182	0.8689	10.0498	200.9966	0.542	86.550	6.1977	-30.00	-31.81	4.411	0.124	0.666
144	3397	3416	20	963.380	0.8698	10.0604	201.2087	0.542	86.595	6.2047	-30.00	-31.79	4.411	0.124	0.666
145	3417	3436	20	969.584	0.8707	10.0709	201.4188	0.544	86.640	6.2180	-30.00	-31.77	4.415	0.124	0.668
146	3437	3456	20	975.802	0.8716	10.0814	201.6270	0.544	86.684	6.2248	-30.00	-31.76	4.415	0.124	0.669
147	3457	3476	20	982.027	0.8725	10.0917	201.8333	0.544	86.728	6.2316	-30.00	-31.74	4.415	0.125	0.669
148	3477	3496	20	988.259	0.8734	10.1019	202.0375	0.545	86.772	6.2383	-30.00	-31.72	4.415	0.125	0.669
149	3497	3516	20	994.497	0.8743	10.1120	202.2398	0.546	86.815	6.2511	-30.00	-31.70	4.420	0.125	0.671
150	3517	3536	20	1000.748	0.8751	10.1220	202.4404	0.546	86.856	6.2577	-30.00	-31.68	4.420	0.125	0.671
151	3537	3556	20	1007.006	0.8760	10.1320	202.6390	0.547	86.894	6.2642	-30.00	-31.67	4.420	0.125	0.672
152	3557	3576	20	1013.270	0.8768	10.1418	202.8357	0.547	86.931	6.2706	-30.00	-31.65	4.420	0.125	0.672
				1019.541											

SUB REARA STANDARD DISTANCE IS ASSUMED TO BE   5.0000
SPACE BETWEEN TANK IS REARRANGED SO THAT IT MAY
BE ODD MULTIPLE OF BETA*RAMDA/2   -------

IMPORTANT MODIFCATION 900312 T.KATO
DRIFT SPACE BETWEEN TANKS, BOTH END SPACES BECOME EQUAL
OLD VERSION, LEFT AND RIGHT SIDES OF TANK ARE EQUAL

TANK	RESERVE	EXTEND	TOTAL	SPACE	BE*LAM/2	PHA-SLIP	SPB(J)	SPF(J+1)
1	11	0	11	64.96504	5.87372	0.06029	12.48252	12.48252
2	11	0	11	65.40776	5.91418	0.05948	12.70388	12.70388
3	11	0	11	65.84764	5.95438	0.05869	12.92382	12.92382
4	11	0	11	66.28469	5.99433	0.05790	13.14234	13.14234
5	11	0	11	66.84337	6.03795	0.07054	13.42169	13.42169
6	11	0	11	67.31673	6.08127	0.06952	13.65836	13.65836
7	11	0	11	67.78673	6.12428	0.06852	13.89337	13.89337
8	11	0	11	68.25338	6.16699	0.06753	14.12669	14.12669
9	11	0	11	68.43388	6.21310	0.08044	14.42194	14.42194
10	11	0	11	69.34311	6.25886	0.07920	14.67155	14.67155
11	11	0	11	69.83844	6.30426	0.07798	14.91922	14.91922
12	11	0	11	70.32989	6.34931	0.07678	15.16494	15.16494
13	11	0	11	70.94657	6.39748	0.08977	15.47328	15.47328
14	11	0	11	71.46662	6.44524	0.08829	15.73331	15.73331
15	11	0	11	71.98208	6.49258	0.08682	15.99104	15.99104
16	11	0	11	72.49299	6.53951	0.08539	16.24649	16.24649
17	11	0	11	73.12946	6.58927	0.09655	16.56473	16.56473
18	11	0	11	73.66522	6.63857	0.09487	16.83261	16.83261
19	11	0	11	74.19590	6.68740	0.09323	17.09795	17.09795
20	11	0	11	74.72151	6.73578	0.10588	17.36076	17.36076
21	11	0	11	75.37241	6.78671	0.10395	17.68621	17.68621
22	11	0	11	75.91930	6.83714	0.10206	17.95965	17.95965
23	11	0	11	76.46062	6.88706	0.10021	18.23031	18.23031
24	11	0	11	76.99637	6.93648	0.11796	18.49819	18.49819
25	7	2	9	63.73908	6.99056	0.11562	11.86984	11.86984
26	7	2	9	64.21089	7.04405	0.11334	12.10544	12.10544
27	7	2	9	64.67670	7.09693	0.11110	12.33835	12.33835
28	7	2	9	65.13713	7.14920	0.09659	12.56856	12.56856
29	7	2	9	65.48369	7.19871	0.09476	12.74185	12.74185
30	7	2	9	65.91561	7.24765	0.09297	12.95781	12.95781
31	7	2	9	66.34252	7.29602	0.09122	13.17126	13.17126
32	7	2	9	66.76444	7.34383	0.09065	13.38222	13.38222
33	7	2	9	67.19505	7.39167	0.08893	13.59753	13.59753
34	7	2	9	67.61195	7.43893	0.08725	13.80597	13.80597
35	7	2	9	68.02383	7.48563	0.08561	14.01191	14.01191
36	7	2	9	68.43071	7.53177	0.08500	14.21535	14.21535
37	7	2	9	68.84488	7.57786	0.08334	14.42244	14.42244
38	7	2	9	69.24569	7.62337	0.08173	14.62285	14.62285
39	7	2	9	69.64131	7.66829	0.08015	14.82066	14.82066
40	7	2	9	70.03179	7.71263	0.06868	15.01589	15.01589
41	7	2	9	70.31931	7.75409	0.06743	15.15966	15.15966
42	7	2	9	70.68082	7.79503	0.06620	15.34041	15.34041
43	7	2	9	71.03776	7.83545	0.06500	15.51888	15.51888
44	7	2	9	71.39020	7.87537	0.06447	15.69510	15.69510
45	7	2	9	71.74680	7.91516	0.06330	15.87340	15.87340
46	7	2	9	72.09364	7.95445	0.06330	16.04682	16.04682

n								
47	16.21801	16.21801	0.06216	7.99324	72.43603	9	2	7
48	16.38701	16.38701	0.06104	8.03153	72.77402	9	2	7
49	16.55772	16.55772	0.06052	8.06968	73.11544	9	2	7
50	16.72387	16.72387	0.05943	8.10733	73.47774	9	2	7
51	16.88789	16.88789	0.05836	8.14449	73.77578	9	0	7
52	8.86866	8.86866	0.05733	8.18118	57.99044	7	0	7
53	8.99522	8.99522	0.05678	8.21769	58.23644	7	0	7
54	9.11822	9.11822	0.05578	8.25372	58.47924	7	0	7
55	9.23962	9.23962	0.05480	8.28928	58.71890	7	0	7
56	9.35945	9.35945	0.05384	8.32439	58.96028	7	0	7
57	9.48014	9.48014	0.05328	8.39371	59.19531	7	0	7
58	9.59765	9.59765	0.05234	8.42769	59.42724	7	0	7
59	9.71362	9.71362	0.05143	8.46122	59.65614	7	0	7
60	9.82807	9.82807	0.05053	8.49215	59.80676	7	0	7
61	9.90338	9.90338	0.04259	8.52270	60.01602	7	0	7
62	10.00801	10.00801	0.04190	8.55287	60.22269	7	0	7
63	10.11134	10.11134	0.04123	8.58267	60.42680	7	0	7
64	10.21340	10.21340	0.04056	8.61226	60.63163	7	0	7
65	10.31581	10.31581	0.04015	8.64149	60.83184	7	0	7
66	10.41592	10.41592	0.03951	8.67036	61.02956	7	0	7
67	10.51478	10.51478	0.03887	8.69886	61.22483	7	0	7
68	10.61241	10.61241	0.03826	8.72717	61.42052	7	0	7
69	10.71026	10.71026	0.03785	8.75512	61.61198	7	0	7
70	10.80599	10.80599	0.03725	8.78272	61.80105	7	0	7
71	10.90053	10.90053	0.03667	8.80997	61.98778	7	0	7
72	10.99389	10.99389	0.03609	8.83701	62.17440	7	0	7
73	11.08720	11.08720	0.03568	8.86371	62.35729	7	0	7
74	11.17864	11.17864	0.03512	8.89007	62.53789	7	0	7
75	11.26895	11.26895	0.03457	8.91611	62.71625	7	0	7
76	11.35813	11.35813	0.03404	8.94193	62.89439	7	0	7
77	11.44720	11.44720	0.03313	8.96742	63.06904	7	0	7
78	11.53452	11.53452	0.03262	8.99260	63.24150	7	0	7
79	11.62075	11.62075	0.03211	9.01746	63.41182	7	0	7
80	11.70591	11.70591	0.03175	9.04211	63.58183	7	0	7
81	11.79091	11.79091	0.03126	9.06645	63.74856	7	0	7
82	11.87428	11.87428	0.03078	9.09049	63.91322	7	0	7
83	11.95661	11.95661	0.03031	9.11422	64.07583	7	0	7
84	12.03791	12.03791	0.02513	9.13587	64.18070	7	0	7
85	12.09035	12.09035	0.02478	9.15727	64.32780	7	0	7
86	12.16390	12.16390	0.02444	9.17842	64.47321	7	0	7
87	12.23661	12.23661	0.02410	9.19932	64.61695	7	0	7
88	12.30847	12.30847	0.02384	9.22006	64.76023	7	0	7
89	12.38011	12.38011	0.02351	9.24055	64.90113	7	0	7
90	12.45057	12.45057	0.02319	9.26081	65.04041	7	0	7
91	12.52021	12.52021	0.02287	9.28084	65.17810	7	0	7
92	12.58905	12.58905	0.02262	9.30069	65.31526	7	0	7
93	12.65763	12.65763	0.02231	9.32032	65.45020	7	0	7
94	12.72510	12.72510	0.02201	9.33972	65.58359	7	0	7
95	12.79180	12.79180	0.02171	9.35890	65.71547	7	0	7
96	12.85773	12.85773	0.02147	9.37791	65.84672	7	0	7
97	12.92336	12.92336	0.02118	9.39670	65.97593	7	0	7
98	12.98796	12.98796	0.02090	9.41527	66.10366	7	0	7
99	13.05183	13.05183	0.02061	9.43364	66.22994	7	0	7
100	13.11497	13.11497	0.02039	9.45184	66.35560	7	0	7
101	13.17780	13.17780	0.02012	9.46983	66.47932	7	0	7
102	13.23966	13.23966	0.01985	9.48762	66.60165	7	0	7
103	13.30082	13.30082	0.01958	9.50520	66.72258	7	0	7
104	13.36129	13.36129	0.01937	9.52263	66.84289	7	0	7
105	13.42144	13.42144	0.01912	9.53986	66.96138	7	0	7
106	13.48069	13.48069				7	0	7

Index								
107	^	0	^	67.07853	9.55689	0.01886	13.53926	13.53926
108	^	0	^	67.19436	9.57373	0.01862	13.59718	13.59718
109	^	0	^	67.30956	9.59042	0.01841	13.65478	13.65478
110	^	0	^	67.42305	9.60692	0.01817	13.71152	13.71152
111	^	0	^	67.53526	9.62324	0.01794	13.76763	13.76763
112	^	0	^	67.64621	9.63937	0.01770	13.82311	13.82311
113	^	0	^	67.75654	9.65535	0.01751	13.87827	13.87827
114	^	0	^	67.86525	9.67115	0.01729	13.93263	13.93263
115	^	0	^	67.97275	9.68678	0.01706	13.98637	13.98637
116	^	0	^	68.07905	9.70223	0.01684	14.03952	14.03952
117	^	0	^	68.18472	9.71754	0.01666	14.09236	14.09236
118	^	0	^	68.28888	9.73268	0.01645	14.14444	14.14444
119	^	0	^	68.39188	9.74765	0.01624	14.19594	14.19594
120	^	0	^	68.49374	9.76246	0.01603	14.24687	14.24687
121	^	0	^	68.59498	9.77713	0.01586	14.29749	14.29749
122	^	0	^	68.69479	9.79163	0.01566	14.34739	14.34739
123	^	0	^	68.79350	9.80598	0.01546	14.39675	14.39675
124	^	0	^	68.89111	9.82017	0.01527	14.44556	14.44556
125	^	0	^	68.98813	9.83422	0.01511	14.49407	14.49407
126	^	0	^	69.08380	9.84812	0.01492	14.54190	14.54190
127	^	0	^	69.17844	9.86187	0.01473	14.58922	14.58922
128	^	0	^	69.27204	9.87548	0.01455	14.63602	14.63602
129	^	0	^	69.36498	9.88895	0.01440	14.68249	14.68249
130	^	0	^	69.45670	9.90227	0.01422	14.72835	14.72835
131	^	0	^	69.54743	9.91545	0.01404	14.77371	14.77371
132	^	0	^	69.63718	9.92849	0.01387	14.81859	14.81859
133	^	0	^	69.72626	9.94140	0.01372	14.86313	14.86313
134	^	0	^	69.81419	9.95418	0.01356	14.90710	14.90710
135	^	0	^	69.90119	9.96682	0.01339	14.95060	14.95060
136	^	0	^	69.98725	9.97932	0.01323	14.99363	14.99363
137	^	0	^	70.07267	9.99170	0.01309	15.03633	15.03633
138	^	0	^	70.15701	10.00395	0.01293	15.07850	15.07850
139	^	0	^	70.24044	10.01607	0.01278	15.12022	15.12022
140	^	0	^	70.32300	10.02806	0.01263	15.16150	15.16150
141	^	0	^	70.37535	10.03887	0.01028	15.18768	15.18768
142	^	0	^	70.44933	10.04958	0.01017	15.22466	15.22466
143	^	0	^	70.52259	10.06019	0.01006	15.26129	15.26129
144	^	0	^	70.59514	10.07070	0.00996	15.29757	15.29757
145	^	0	^	70.66717	10.08111	0.00986	15.33359	15.33359
146	^	0	^	70.73841	10.09142	0.00975	15.36921	15.36921
147	^	0	^	70.80897	10.10164	0.00965	15.40448	15.40448
148	^	0	^	70.87885	10.11176	0.00955	15.43942	15.43942
149	^	0	^	70.94822	10.12179	0.00946	15.47411	15.47411
150	^	0	^	71.01684	10.13172	0.00936	15.50842	15.50842
151	^	0	^	71.08481	10.14156	0.00926	15.54241	15.54241

SPF(1)= 12.4825   SPB(NSPQ)= 15.5424

-- SUB INTQFE CELL DETERMIN CALLED -----

TOTLENG= 30383.0680 WHOLE LENGTH WITH Q= 40523.4191
TOTRF0= 68.0620 TOTRF*1.200= 81.6744

RF DEFOCUSING IN EVERY CELLS IS INCLUDED ---
AVERAGE OF FIRST AND LAST CELLS BETA*GANMA IS USED IN THE CALCULATION
SPAC(6)=FACTQ= 1.000
TRANSITION Q-MAG NO.= 24 IS MULTIPLIED BY FACTRQ 1.0000

3) Details of the Design with Focusing Section

TANK	STARTP cm	TANKLENG cm	TOTWITHQ cm	SPACE(11) cm	SPB cm	SPF cm	SPACE(12) cm	SPAC(3) cm	SPAC(4) cm	SPAC(5) cm	SPAC(11) cm
1	0.0	105.0138	105.0138	64.9650	12.4825	12.4825	169.9789	10.000	7.50	12.50	0.0
2	169.9789	105.7466	275.7255	65.4078	12.7039	12.7039	170.9330	10.000	7.50	12.50	0.0
3	341.1332	106.4747	447.6080	65.8476	12.9238	12.9238	172.1024	10.000	7.50	12.50	0.0
4	513.4556	107.1982	620.6538	66.2847	13.1423	13.1423	173.2644	10.000	7.50	12.50	0.0
5	686.9385	119.9079	806.8464	66.8434	13.4217	13.4217	186.4719	10.000	7.50	12.50	0.0
6	873.6898	120.7802	994.4700	67.3167	13.6584	13.6584	187.8603	10.000	7.50	12.50	0.0
7	1061.7868	121.6464	1183.4332	67.7867	13.8934	13.8934	189.1982	10.000	7.50	12.50	0.0
8	1251.2199	122.5066	1373.7265	68.2534	14.1267	14.1267	190.5266	10.000	7.50	12.50	0.0
9	1441.6204	135.6966	1577.6765	68.8431	14.4219	14.4219	204.2453	10.000	7.50	12.50	0.0
10	1646.5204	136.7173	1783.2312	69.3431	14.6716	14.6716	205.8043	10.000	7.50	12.50	0.0
11	1852.5743	137.7159	1990.2916	69.8384	14.9192	14.9192	207.3081	10.000	7.50	12.50	0.0
12	2060.1301	138.7159	2198.8460	70.3299	15.1649	15.1649	208.8001	10.000	7.50	12.50	0.0
13	2269.1759	152.4074	2421.5833	70.9466	15.4733	15.4733	223.0457	10.000	7.50	12.50	0.0
14	2492.5299	153.5633	2646.0931	71.4666	15.7333	15.7333	224.7699	10.000	7.50	12.50	0.0
15	2717.5598	154.7092	2872.2690	71.9821	15.9910	15.9910	226.4336	10.000	7.50	12.50	0.0
16	2944.5211	155.8452	3100.0963	72.4930	16.2465	16.2465	228.0828	10.000	7.50	12.50	0.0
17	3172.5893	170.0522	3342.6415	73.1295	16.5647	16.5647	242.8635	10.000	7.50	12.50	0.0
18	3415.7710	171.3458	3587.1168	73.6652	16.8326	16.8326	244.7431	10.000	7.50	12.50	0.0
19	3660.7820	172.6273	3833.4092	74.1959	17.0980	17.0980	246.5578	10.000	7.50	12.50	0.0
20	3907.6051	173.8967	4081.5019	74.7215	17.3608	17.3608	248.3554	10.000	7.50	12.50	0.0
21	4156.2234	188.6276	4344.8509	75.3724	17.6862	17.6862	263.6745	10.000	7.50	12.50	0.0
22	4420.2234	190.0535	4610.2769	75.9193	17.9597	17.9597	265.6994	10.000	7.50	12.50	0.0
23	4686.1962	191.4652	4877.6614	76.4606	18.2303	18.2303	267.6552	10.000	7.50	12.50	0.0
24	4954.1220	192.8628	5146.9848	76.9964	18.4982	18.4982	269.5912	10.000	7.50	12.50	0.0
25	5223.9811	208.1221	5432.1032	63.7397	11.8698	11.8698	271.7196	10.000	7.50	12.50	0.0
26	5495.8428	209.7443	5705.5871	64.2109	12.1054	12.1054	273.5922	10.000	7.50	12.50	0.0
27	5769.7980	211.3484	5981.1464	64.6767	12.3383	12.3383	275.7922	10.000	7.50	12.50	0.0
28	6045.8231	212.9345	6258.7576	65.1371	12.5686	12.5686	277.8414	10.000	7.50	12.50	0.0
29	6323.8947	200.2026	6524.0973	65.4837	12.7418	12.7418	265.5130	10.000	7.50	12.50	0.0
30	6589.5805	201.5884	6790.0433	65.9425	12.9578	12.9578	267.2880	10.000	7.50	12.50	0.0
31	6857.0859	202.9583	7060.6984	66.3425	13.1713	13.1713	269.0874	10.000	7.50	12.50	0.0
32	7126.3859	204.3125	7330.1141	66.7644	13.3822	13.3822	270.8660	10.000	7.50	12.50	0.0
33	7397.4628	205.6513	7603.2994	67.1951	13.5975	13.5975	272.6310	10.000	7.50	12.50	0.0
34	7670.3091	206.9903	7877.2248	67.6119	13.8060	13.8060	274.3938	10.000	7.50	12.50	0.0
35	7944.9114	208.3134	8153.2248	68.0238	14.0119	14.0119	276.1313	10.000	7.50	12.50	0.0
36	8221.2486	209.6206	8430.8692	68.4307	14.2154	14.2154	277.8479	10.000	7.50	12.50	0.0
37	8499.2999	210.9124	8710.2124	68.8449	14.4228	14.4228	279.5502	10.000	7.50	12.50	0.0
38	8779.0572	212.2290	8991.2604	69.2196	14.6228	14.6228	281.2920	10.000	7.50	12.50	0.0
39	9060.5058	213.4767	9273.9824	69.6412	14.8207	14.8207	282.9202	10.000	7.50	12.50	0.0
40	9343.6237	214.7341	9558.3578	70.0318	15.0159	15.0159	284.5706	10.000	7.50	12.50	0.0
41	9628.3896	200.5486	9828.9382	70.3193	15.1597	15.1597	270.7242	10.000	7.50	12.50	0.0
42	9899.2575	201.6263	10100.8838	70.6808	15.3404	15.3404	272.1264	10.000	7.50	12.50	0.0
43	10171.5646	202.6905	10374.2551	71.0378	15.5189	15.5189	273.5498	10.000	7.50	12.50	0.0
44	10445.2929	203.7412	10649.0341	71.3902	15.6951	15.6951	274.9552	10.000	7.50	12.50	0.0
45	10720.4243	204.7790	10925.2033	71.7468	15.8734	15.8734	276.3475	10.000	7.50	12.50	0.0
46	10996.9501	205.8135	11200.7636	72.0934	16.0468	16.0468	277.7337	10.000	7.50	12.50	0.0
47	11274.8570	206.8349	11481.6919	72.4360	16.2180	16.2180	279.0996	10.000	7.50	12.50	0.0
48	11554.1280	207.8429	11761.9709	72.7740	16.3870	16.3870	280.4480	10.000	7.50	12.50	0.0
49	11834.7449	208.8384	12043.5833	73.1154	16.5577	16.5577	281.7831	10.000	7.50	12.50	0.0
50	12116.6987	209.8300	12326.5287	73.4477	16.7239	16.7239	283.1115	10.000	7.50	12.50	0.0
51	12399.9764	210.8086	12610.7850	73.7758	16.8879	16.8879	284.4204	10.000	7.50	12.50	0.0
52	12684.5608	211.7746	12896.3354	57.7373	8.8687	8.8687	270.5312	10.000	7.50	12.50	0.0
53	12954.0727	212.7284	13166.8011	57.9905	8.9952	8.9952	271.7907	10.000	7.50	12.50	0.0
54	13224.7916	213.6773	13438.4689	58.2364	9.1182	9.1182	272.9718	10.000	7.50	12.50	0.0
55	13496.7053	214.6139	13711.3192	58.4792	9.2396	9.2396	274.1431	10.000	7.50	12.50	0.0

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                                                  9.3
 56 13769.7985 215.5384 13985.3369   58.7189  9[illegible]594   9.3594  274.1375  10.00   7.50  12.50   0.0
 57 14044.0558 216.4510 14260.5067   58.9603  9.4801    9.4801  275.2906  10.00   7.50  12.50   0.0
 58 14319.4670 217.3578 14536.8249   59.1953  9.5977    9.5977  276.4356  10.00   7.50  12.50   0.0
 59 14596.0202 218.2528 14814.2730   59.4272  9.7136    9.7136  277.5641  10.00   7.50  12.50   0.0
 60 14873.7003 219.1361 15092.8363   59.6561  9.8281    9.8281  278.6778  10.00   7.50  12.50   0.0
 61 15152.4925 203.0842 15355.5767   59.8068  9.9034    9.9034  262.8156  10.00   7.50  12.50   0.0
 62 15415.3834 203.8263 15619.2097   60.0160 10.0080   10.0080  263.7377  10.00   7.50  12.50   0.0
 63 15679.2257 204.5593 15883.7850   60.2227 10.1113   10.1113  264.6786  10.00   7.50  12.50   0.0
 64 15944.0077 205.2831 16149.2908   60.4268 10.2134   10.2134  265.6079  10.00   7.50  12.50   0.0
 65 16209.7176 205.9981 16415.7157   60.6316 10.3158   10.3158  266.5273  10.00   7.50  12.50   0.0
 66 16476.3474 206.7083 16683.0557   60.8318 10.4159   10.4159  267.4400  10.00   7.50  12.50   0.0
 67 16743.8875 207.4096 16951.2971   61.0296 10.5148   10.5148  268.3403  10.00   7.50  12.50   0.0
 68 17012.3267 208.1022 17220.4289   61.2248 10.6124   10.6124  269.2294  10.00   7.50  12.50   0.0
 69 17281.6537 208.7862 17490.4399   61.4205 10.7103   10.7103  270.1089  10.00   7.50  12.50   0.0
 70 17551.8604 209.4653 17761.3257   61.6120 10.8060   10.8060  270.9815  10.00   7.50  12.50   0.0
 71 17822.9377 210.1359 18033.0736   61.8011 10.9005   10.9005  271.8424  10.00   7.50  12.50   0.0
 72 18094.8747 210.7982 18305.6729   61.9878 10.9939   10.9939  272.6926  10.00   7.50  12.50   0.0
 73 18367.6606 211.4523 18579.1129   62.1744 11.0872   11.0872  273.5333  10.00   7.50  12.50   0.0
 74 18641.2873 212.1010 18853.3882   62.3573 11.1786   11.1786  274.3668  10.00   7.50  12.50   0.0
 75 18915.7455 212.7416 19128.4871   62.5379 11.2689   11.2689  275.1891  10.00   7.50  12.50   0.0
 76 19191.0250 213.3742 19404.3991   62.7163 11.3581   11.3581  276.0012  10.00   7.50  12.50   0.0
 77 19467.1154 213.9989 19681.1143   62.8944 11.4472   11.4472  276.8042  10.00   7.50  12.50   0.0
 78 19744.0087 214.6184 19958.6271   63.0690 11.5345   11.5345  277.6001  10.00   7.50  12.50   0.0
 79 20021.6961 215.2301 20236.9262   63.2415 11.6208   11.6208  278.3854  10.00   7.50  12.50   0.0
 80 20300.1677 215.8342 20516.0019   63.4118 11.7059   11.7059  279.1609  10.00   7.50  12.50   0.0
 81 20579.4137 216.4308 20795.8445   63.5818 11.7909   11.7909  279.9276  10.00   7.50  12.50   0.0
 82 20859.4263 217.0222 21076.4485   63.7486 11.8743   11.8743  280.6874  10.00   7.50  12.50   0.0
 83 21140.1971 217.6062 21357.8033   63.9132 11.9566   11.9566  281.4371  10.00   7.50  12.50   0.0
 84 21421.7165 218.1829 21639.8994   64.0758 12.0379   12.0379  282.1774  10.00   7.50  12.50   0.0
 85 21703.9752 200.5231 21904.4982   64.1807 12.0903   12.0903  264.6513  10.00   7.50  12.50   0.0
 86 21968.6789 200.9992 22169.6781   64.3278 12.1639   12.1639  265.2534  10.00   7.50  12.50   0.0
 87 22234.0059 201.4698 22435.4758   64.4732 12.2366   12.2366  265.8703  10.00   7.50  12.50   0.0
 88 22499.9490 201.9350 22701.8840   64.6169 12.3085   12.3085  266.4801  10.00   7.50  12.50   0.0
 89 22766.5010 202.3949 22968.8959   64.7602 12.3801   12.3801  267.0835  10.00   7.50  12.50   0.0
 90 23033.6561 202.8509 23236.5070   64.9011 12.4506   12.4506  267.6816  10.00   7.50  12.50   0.0
 91 23301.4082 203.3017 23504.7099   65.0404 12.5202   12.5202  268.2725  10.00   7.50  12.50   0.0
 92 23569.7503 203.7473 23773.4976   65.1781 12.5890   12.5890  268.8565  10.00   7.50  12.50   0.0
 93 23838.6757 204.1878 24042.8634   65.3153 12.6576   12.6576  269.4344  10.00   7.50  12.50   0.0
 94 24108.1787 204.6245 24312.8031   65.4502 12.7251   12.7251  270.0072  10.00   7.50  12.50   0.0
 95 24378.2533 205.0561 24583.3095   65.5836 12.7918   12.7918  270.5730  10.00   7.50  12.50   0.0
 96 24648.8931 205.4829 24854.3759   65.7155 12.8577   12.8577  271.1324  10.00   7.50  12.50   0.0
 97 24920.0914 205.9047 25125.9961   65.8467 12.9234   12.9234  271.6858  10.00   7.50  12.50   0.0
 98 25191.8428 206.3228 25398.1656   65.9759 12.9880   12.9880  272.2341  10.00   7.50  12.50   0.0
 99 25464.1415 206.7361 25670.8776   66.1037 13.0518   13.0518  272.7759  10.00   7.50  12.50   0.0
100 25736.9813 207.1447 25944.1260   66.2299 13.1150   13.1150  273.3115  10.00   7.50  12.50   0.0
101 26010.3559 207.5486 26217.9045   66.3556 13.1778   13.1778  273.8414  10.00   7.50  12.50   0.0
102 26284.2601 207.9489 26492.2090   66.4793 13.2397   13.2397  274.3664  10.00   7.50  12.50   0.0
103 26558.6883 208.3446 26767.0330   66.6016 13.3008   13.3008  274.8851  10.00   7.50  12.50   0.0
104 26833.6346 208.7359 27042.3705   66.7226 13.3613   13.3613  275.3980  10.00   7.50  12.50   0.0
105 27109.0931 209.1227 27318.2157   66.8429 13.4214   13.4214  275.9054  10.00   7.50  12.50   0.0
106 27385.0586 209.5060 27594.5646   66.9614 13.4807   13.4807  276.4081  10.00   7.50  12.50   0.0
107 27661.5260 209.8849 27871.4109   67.0785 13.5393   13.5393  276.9049  10.00   7.50  12.50   0.0
108 27938.4894 210.2596 28148.7490   67.1944 13.5972   13.5972  277.3960  10.00   7.50  12.50   0.0
109 28215.9433 210.6300 28426.5733   67.3096 13.6548   13.6548  277.8819  10.00   7.50  12.50   0.0
110 28493.8829 210.9970 28704.8799   67.4230 13.7115   13.7115  278.3633  10.00   7.50  12.50   0.0
111 28772.3029 211.3600 28983.6629   67.5353 13.7676   13.7676  278.8391  10.00   7.50  12.50   0.0
112 29051.1982 211.7188 29262.9169   67.6462 13.8231   13.8231  279.3095  10.00   7.50  12.50   0.0
113 29330.5632 212.0736 29542.6367   67.7565 13.8783   13.8783  279.7749  10.00   7.50  12.50   0.0
114 29610.3933 212.4251 29822.8184   67.8653 13.9326   13.9326  280.2360  10.00   7.50  12.50   0.0
115 29890.6836 212.7727 30103.4564   67.9727 13.9864   13.9864  280.6917  10.00   7.50  12.50   0.0
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116	30171.4291	213.1164	30384.5455	68.0790	14.0395	14.0395	281.1423	10.00	7.50	12.50	0.0
117	30452.6246	213.4563	30666.0809	68.1847	14.0924	14.0924	281.5882	10.00	7.50	12.50	0.0
118	30734.2656	213.7931	30948.0587	68.2889	14.1444	14.1444	282.0299	10.00	7.50	12.50	0.0
119	31016.3475	214.1261	31230.4736	68.3919	14.1959	14.1959	282.4664	10.00	7.50	12.50	0.0
120	31298.8655	214.4553	31513.3208	68.4937	14.2469	14.2469	282.8981	10.00	7.50	12.50	0.0
121	31581.8145	214.7810	31796.5955	68.5950	14.2975	14.2975	283.3253	10.00	7.50	12.50	0.0
122	31865.1905	215.1036	32080.2941	68.6948	14.3474	14.3474	283.7485	10.00	7.50	12.50	0.0
123	32148.9889	215.4227	32364.4115	68.7935	14.3967	14.3967	284.1668	10.00	7.50	12.50	0.0
124	32433.2050	215.7382	32648.9432	68.8911	14.4456	14.4456	284.5805	10.00	7.50	12.50	0.0
125	32717.8343	216.0502	32933.8845	68.9881	14.4941	14.4941	284.9898	10.00	7.50	12.50	0.0
126	33002.8727	216.3594	33219.2321	69.0838	14.5419	14.5419	285.3954	10.00	7.50	12.50	0.0
127	33288.3159	216.6652	33504.9810	69.1784	14.5892	14.5892	285.7963	10.00	7.50	12.50	0.0
128	33574.1595	216.9676	33791.1271	69.2720	14.6360	14.6360	286.1928	10.00	7.50	12.50	0.0
129	33860.3991	217.2667	34077.6659	69.3650	14.6825	14.6825	286.5853	10.00	7.50	12.50	0.0
130	34147.0308	217.5631	34364.5939	69.4567	14.7283	14.7283	286.9739	10.00	7.50	12.50	0.0
131	34434.0506	217.8561	34651.9067	69.5474	14.7737	14.7737	287.3582	10.00	7.50	12.50	0.0
132	34721.2374	218.1460	34939.6002	69.6372	14.8186	14.8186	287.7384	10.00	7.50	12.50	0.0
133	35009.2374	218.4328	35227.6702	69.7263	14.8631	14.8631	288.1145	10.00	7.50	12.50	0.0
134	35297.3965	218.7169	35516.1133	69.8142	14.9071	14.9071	288.4871	10.00	7.50	12.50	0.0
135	35585.9275	218.9978	35804.9254	69.9012	14.9506	14.9506	288.8555	10.00	7.50	12.50	0.0
136	35874.8266	219.2758	36094.1023	69.9873	14.9936	14.9936	289.2200	10.00	7.50	12.50	0.0
137	36164.0896	219.5507	36383.6403	70.0727	15.0363	15.0363	289.5807	10.00	7.50	12.50	0.0
138	36453.7130	219.8231	36673.5361	70.1570	15.0785	15.0785	289.9379	10.00	7.50	12.50	0.0
139	36743.6931	220.0925	36963.7856	70.2404	15.1202	15.1202	290.2912	10.00	7.50	12.50	0.0
140	37034.0260	220.3591	37254.3851	70.3230	15.1615	15.1615	290.6408	10.00	7.50	12.50	0.0
141	37324.7081	200.5661	37545.2742	70.3754	15.1877	15.1877	270.9153	10.00	7.50	12.50	0.0
142	37595.6496	200.7824	37796.4320	70.4493	15.2247	15.2247	271.1948	10.00	7.50	12.50	0.0
143	37866.8814	200.9966	38067.8780	70.5226	15.2613	15.2613	271.4826	10.00	7.50	12.50	0.0
144	38138.4005	201.2087	38339.6093	70.5951	15.2976	15.2976	271.7676	10.00	7.50	12.50	0.0
145	38410.2044	201.4188	38611.6232	70.6672	15.3336	15.3336	272.0499	10.00	7.50	12.50	0.0
146	38682.2903	201.6270	38883.9174	70.7384	15.3692	15.3692	272.3298	10.00	7.50	12.50	0.0
147	38954.6558	201.8333	39156.4890	70.8090	15.4045	15.4045	272.6069	10.00	7.50	12.50	0.0
148	39227.2980	202.0375	39429.3355	70.8788	15.4394	15.4394	272.8814	10.00	7.50	12.50	0.0
149	39500.2143	202.2398	39702.4542	70.9482	15.4741	15.4741	273.1533	10.00	7.50	12.50	0.0
150	39773.4024	202.4404	39975.8427	71.0168	15.5084	15.5084	273.4229	10.00	7.50	12.50	0.0
151	40046.8596	202.6390	40249.4986	71.0848	15.5424	15.5424	273.6898	10.00	7.50	12.50	0.0
152	40320.5834	202.8357	40523.4191	71.0848	15.5424	15.5424	0.0	10.00	7.50	12.50	0.0

TOT LENGTH (FROM PLATE TO PLATE WITH Q= 40523.4191
FOR CHECK MULTIPLE OF Q-MAG LENGTH AZX = 40591.4441
NOUSE ***
LINOUT