

120 Degree Phase Advance\ Cell Lattice

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120° PHASE ADVANCE/CELL LATTICE

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120° Phase Advance / Cell
Lattice

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Lattice

①

No. of Period
Each period has a symmetry point

12

Structure for half a superperiod

(PC) (CS) (2CE) (LS)

C is a regular cell :

QF/2	OO	B	OO	QD/2
QD/2	OO	B	OO	QF/2

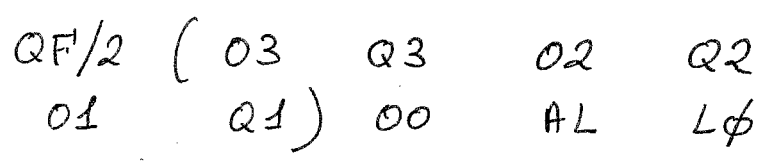
CS is a dispersion killer cell :

QF/2	OO	LB	OO	QD/2
QD/2	OO	B	OO	QF/2

CE is an empty cell :

QF/2	OO	LB	OO	QD/2
QD/2	OO	LB	OO	QF/2

LS is the long straight section :



B_q = 839.72 T-m

Drifts :

Q0	0.9960	m
LB	7.85	
AL	18.	
Lφ	10.	
Q1	}	to be adjusted
Q2		
Q3		

Dipole : (B)

Field	3.29459	T
Length	7.85	m

Quadrupoles :

QF', QD

total length	1.9 m
$B'/B\rho$	0.077637 m^{-2}

(adjust strength for a phase advance of 120° per cell)

Q₁, Q₂, Q₃

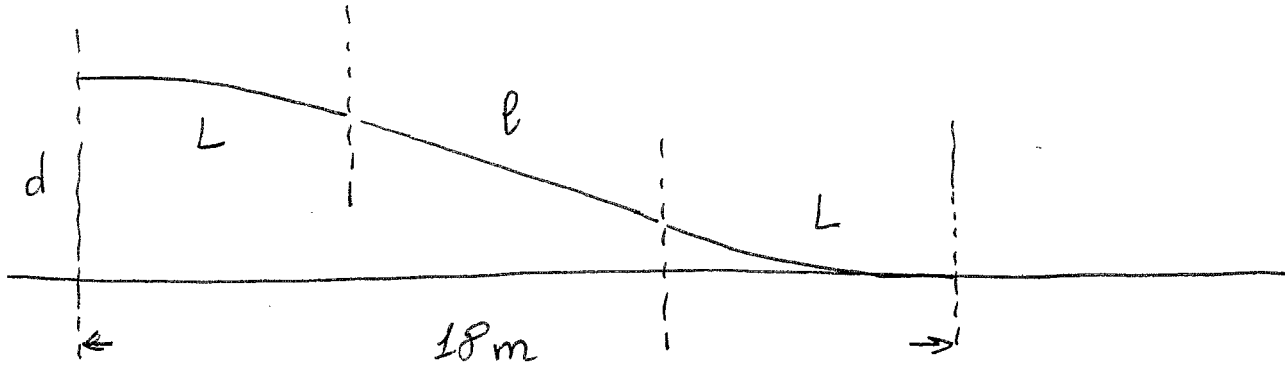
length, strength and location adjusted to get $\beta_H^* = \beta_V^* = 2.0 \text{ m}$

Supplementary Condition :

length of (03 Q3 02 Q2 01 Q1) = 31.2148 m

Vertical Bend (AL)

(4)



$$d = (18 - L) \theta$$

$$L = 9 - \sqrt{81 - d/a} \quad a = 0.003924$$

$$\theta = \frac{0.0308}{7.85} L$$

$$d = 0.003924 (18 - L)L$$

d	L	$9\theta^2/2 = aL^2/2$	l
10 cm	1.55 m	0.47 cm	14.90 m
15	2.46	1.19	13.08
20	3.52	2.43	10.96
25	4.84	4.60	8.32
12	1.90	0.71	14.2

Replace AL with : BV L BV

L Drift 14.2 m
 BVM and BVP are vertical bends } Length 1.90 m
 Field 3.29459 T