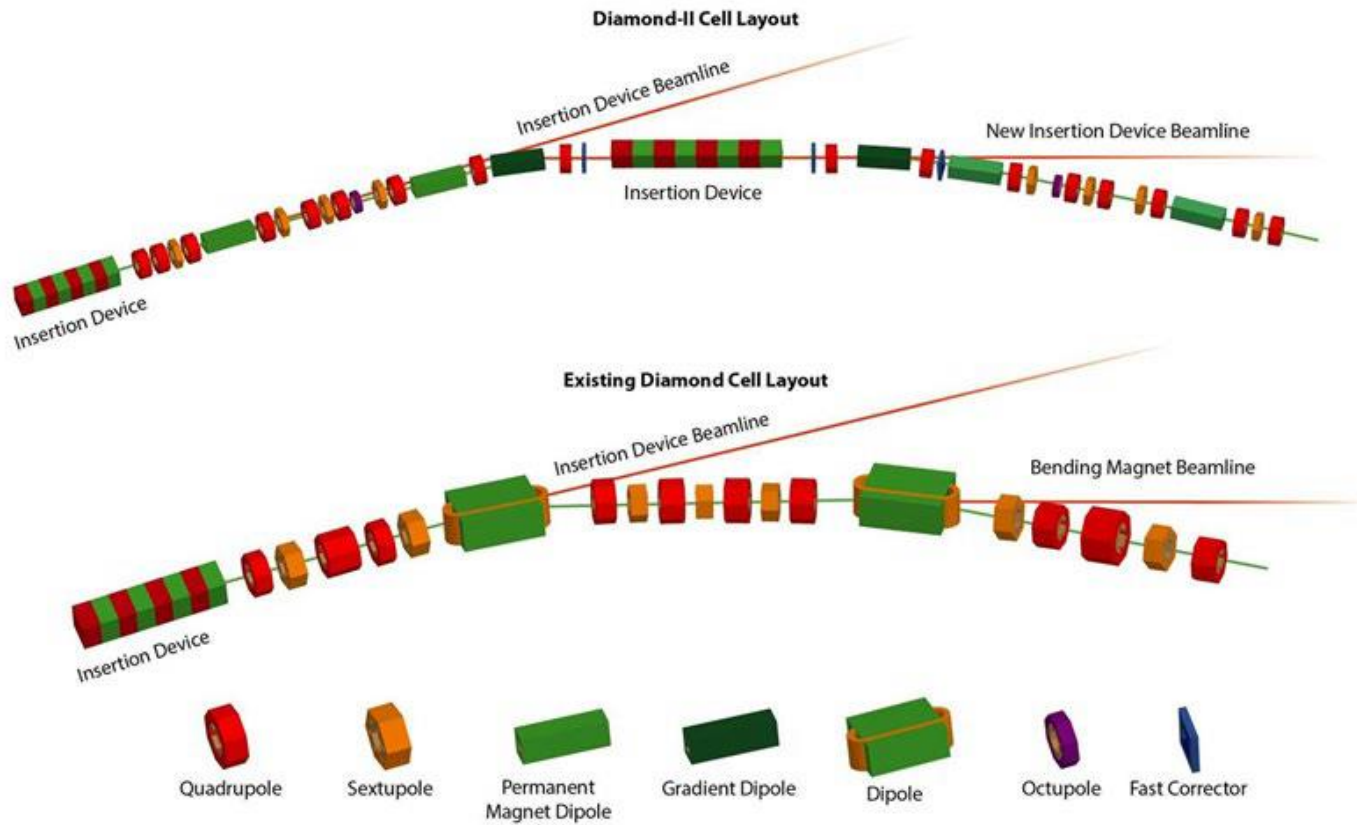


Diamond-II Accelerator Controls Timing System

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Timing Workshop

Diamond-II Accelerator Controls Timing System



Diamond-II Accelerator Controls Timing System

Parameter	Diamond @ 3 GeV	Diamond-II @ 3.5 GeV
Emittance [pm]	2700	160
Circumference [m]	561.571	560.574
Harmonic number	936	934
RF frequency [MHz]	499.680	499.499
Natural bunch length (ps)	11.55 @ 2.17 MV	9.86 @ 1.66 MV

It has been agreed that there is no requirement for regularly-spaced filling patterns, which has allowed the closest match to the existing rf frequency to be achieved with a harmonic number of 934.

$$h = 936 \text{ (factors=2, 2, 2, 3, 3, 13)}$$

$$\Rightarrow f_{\text{RF}} = 500,691,855.43 \text{ Hz}$$

$$h = 933 \text{ (factors=3, 311)}$$

$$\Rightarrow f_{\text{RF}} = 499,087,073.84 \text{ Hz}$$

$$h = 935 \text{ (factors=5, 11, 17)}$$

$$\Rightarrow f_{\text{RF}} = 500,156,928.23 \text{ Hz}$$

$$h = 932 \text{ (factors=2, 2, 233)}$$

$$\Rightarrow f_{\text{RF}} = 498,552,146.64 \text{ Hz}$$

$$h = 934 \text{ (factors=2, 467)}$$

$$\Rightarrow f_{\text{RF}} = 499,622,001.03 \text{ Hz}$$