

## COMPARISON OF PARAMETERS FOR THE (LP)SPL

### BEAM DYNAMICS CONSIDERATIONS

Subject	Frequency	Temperature
<b>Linac length/number of cavities</b>	<b>Using 1408 MHz from 160 MeV onwards will increase the length and number of cavities by ~10%</b>	-
<b>Number of cavity types</b>	<b>704 MHz: 2 beta families, 1408 MHz: 3 families, 352/1408 MHz (spoke + elliptical): 2 spoke families and 1 elliptical</b>	<b>All 3 versions can be operated at 2K. It seems unlikely that 1408 MHz cavities can operate at 4.5 K</b>
<b>Transverse dynamics</b>	<b>Basically unaffected by frequency choice. No difference in losses expected, since all apertures offer sufficient margin.</b>	-
<b>Longitudinal dynamics</b>	<b>For 1408 MHz the longitudinal emittance growth doubles and it is likely to develop more energy/phase jitter. 1408 MHz can accept less jitter from Linac4.</b>	-