

1.3 GHz Phase Averaging Reference Line for Fermilab's NML

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A 1.3 GHz phase averaging reference line is being developed for Fermilab's NML accelerator. The reference line is composed of directional couplers and 7/8" cable. The reference line is shorted at one end of the line to provide reflected signals that are summed and phase averaged with the forward signals at each directional coupler. The phase drifts of the 7/8" cable are compensated for by the phase averaging at each coupler. A method is also outlined to minimize the effects of VSWR mismatches and directivity of the directional couplers. Simulations results of the reference line are presented along with results of a scaled version of the reference line built in the lab.

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