

As well accepted in the proton therapy (PT) community, test frequencies in a periodic QA program should be determined with consideration of the criticality of system failures, which might vary per facility/vendor/technique. DailyQA program at UFPTI Eyeline consists of time and resource-efficient tests that reflect performance and verify absence of critical failures of multiple system components. Specifically, Eyeline DailyQA includes:

1. Input&verification of Temperature&Pressure factors for Therapy-Control-System(TCS) primary open-air MU chamber.
2. Measurement of the following parameters for Reference field (Range/Modulation 2.5/2.0 g/cm2): (a)output in water; (b)range using Multilayer-Ionization-Chamber(MLIC) integrated into the beamline, downstream from all beam-modifying components (except aperture); (c)beam dose-rate.
3. Imaging tests verify (a)constancy of X-Ray image isocenter and scaling; accuracy of chair motion via registering, positioning and measuring size of the plastic 'eyeball' phantom equipped with Ta clips; (b)laser, X-Ray, light-field alignment.
4. Functionality tests for items crucial for safety of either/or patient and therapy staff (e.g.,audio-visual communication, safety interlocks, monitoring systems functionality).

Trendline analysis of 10 years daily system performance show: a) beam delivery is stable with range&modulation not exhibiting any significant trends; b) output&dose-rate measurements appear to have correlated out-of-spec regions, which may be attributed to beam transport and cyclotron performance fluctuations rather than eyeline nozzle-related causes.

