**Appendix 1**

*The AAPM, through its Brachytherapy Subcommittee, has determined that the following brachytherapy source models comply with the AAPM’s dosimetric prerequisites as set forth in one of two publications: "Dosimetric prerequisites for routine clinical use of new low-energy photon interstitial brachytherapy sources: Recommendations of the American Association of Physicists in Medicine Radiation Therapy Committee". Med. Phys.* ***25****, 2269-2270 (1998), or “Dosimetric prerequisites for routine clinical use of photon-emitting brachytherapy sources with average energy higher than 50 keV," Med. Phys. 34, 37-40 (2007). The manufacturers must also satisfy criteria established by the AAPM Subcommittee on Calibration Laboratory Accreditation and described in a publication (hereafter referred to as “the 2004 CLA Report”): “Procedures for establishing and maintaining consistent air-kerma strength standards for low-energy, photon-emitting brachytherapy sources: Recommendations of the Calibration Laboratory Accreditation Subcommittee of the American Association of Physicists in Medicine”. Med. Phys.,* ***35*** *671-685 (2004).* *The criteria are summarized* [*here*](https://aapm.org/org/policies/details.asp?id=393&type=AP#here)*.*

[*Disclaimer*](https://aapm.org/org/policies/details.asp?id=393&type=AP#Disclaimer)

**Note**: The phrase “*here*” is a hyperlink to another webpage that lists the following text:

The AAPM dosimetric prerequisites for adding new brachytherapy sources to the registry may be summarized as follows (see the [complete texts](https://www.aapm.org/pubs/reports/detail.asp?docid=99) for specific considerations):

***Source Calibration Criteria***

* For the large majority of sources, the vendor provides air-kerma based calibrations that are directly or indirectly traceable to one of the calibration standards listed in Table 1.
* Where appropriate, the vendor assures that the calibration from NIST has been transferred to at least one of the ADCLs.
* For low-energy sources, the vendor has implemented a program that is compliant with the 2004 CLA Report for periodically comparing its air-kerma based calibrations with the NIST primary standard and the secondary standards maintained by the ADCLs.
* For high-dose-rate (HDR) 192Ir sources, the air-kerma strength is traceable to NIST through an interpolative standard maintained by each ADCL, and is not specific to unique source models.
* In the case of innovative or orphaned sources for which no NIST primary standard or ADCL interpolative standard exists, the end-user institution is responsible for calibrating the sources with an ionization chamber with appropriate characteristics, which has calibrations directly traceable to an appropriate NIST air-kerma standard.

Table 1: List of the most common air-kerma based calibrations.

|  |  |  |
| --- | --- | --- |
| **Source Type** | **Source Strength Metric** | **Calibration Standard** |
| Low-energy photon-emitting, low-dose-rate sources | Air-kerma strength, *S*K,N99 | NIST WAFAC |
| High-dose-rate (HDR) 192Ir sources | Air-kerma strength, *S*K | Each ADCL maintains an air-kerma strength standard, which is based on an interpolative method traceable to a NIST spherical graphite ionization chamber for 137Cs and a FAC for M250 x-ray beam quality. |
| Electronic brachytherapy (eBT) sources | Air-kerma rate, | NIST Lamperti FAC |

The complete text of the 2004 CLA Report is available here.

***Dosimetry Parameter Considerations***

* For LDR sources, a full set of TG-43 dosimetry parameters should be made available by the vendor, supporting both calculation of the 2D dose-rate distribution and, for interstitial seed models, the 1D isotropic point source approximation.
* For HDR sources, a full set of TG-43 dosimetry parameters should be made available by the vendor, supporting calculation of the 2D dose-rate distribution.
* For low-energy sources, dosimetry parameters must be based upon at least one experimental study and at least one Monte Carlo study of the source model’s dosimetry parameters.
* For high-energy sources, the TG-43 dosimetry parameters should be supplemented with a set of “along and away” tables, and all dosimetry data must be based upon two dose-rate determinations, one of which is a theoretical calculation method such as the Monte Carlo method, and the other an experimental measurement (note: a single dosimetric study is acceptable for certain 137Cs, 192Ir, and 60Co sources under specific circumstances).
* For all source models, the dosimetric studies used as a basis for the dosimetry parameters must be performed by investigators having independence from the manufacturer (laboratory, methods, conflict of interest statement if made under any form of payment/contract) and have been accepted for publication in a peer-reviewed journal.

End Note for “here”

**Note**: The phrase “*Disclaimer*” is a hyperlink to another webpage that lists the following text:

The AAPM and IROC Houston maintain this Registry solely as a service to their members and clients. Neither the AAPM nor IROC Houston endorses or approves specific products. No statement regarding the quality of construction, safety, or clinical effectiveness of specific sources is expressed or implied by inclusion or exclusion of sources from this Registry. The AAPM Brachytherapy Subcommittee bases its decisions to place or exclude source models in this Registry on the content of published papers and the vendor’s descriptions of its calibration procedure. The AAPM and IROC Houston neither warrant nor are responsible for (a) accuracy of the published dosimetry studies and applicability to the sources as manufactured; (b) compliance of the vendor with its stated procedures; or (c) the accuracy of any particular brachytherapy source calibration. The AAPM does not monitor on a continuing basis the compliance of the vendor’s calibration procedures with the AAPM prerequisites nor the compatibility of its source design and manufacturing practices with the published dosimetry data.

End Note for “Disclaimer”