Laboratory Accreditation & Scope of Accreditation – What does this mean?

Kim Working, MS, DABR

K&S Associates, Inc.
Accreditation defined for the ADCL’s

- The action or process of officially recognizing a laboratory as having a particular status or being qualified to perform a particular (Calibration) activity.
Primary Governing Documents

- **AAPM Criteria**: AAPM Guidance Document regarding the accreditation of an ADCL.

- **ISO/IEC 17025:2017(E)**: A Standards Document from which the AAPM Criteria is developed.
AAPM Criteria:
Describes the accreditation process

- General requirements – criteria for accreditation
- Traceability requirements
- Uncertainties of measurements
- ADCL management requirements
- Quality assurance programs
- Proficiency Testing
- Technical requirements
- Calibration results reporting
AAPM Criteria: Specific Criteria

- Air Kerma calibrations for ion chambers and electrometers.
- LDR Brachytherapy source and well-type chambers.
- Air Kerma calibration for diagnostic x-ray systems.
- Absorbed dose to water calibrations for ion chambers.
- HDR Brachytherapy well-type chambers.
- Electrometer calibrations.
- Intravascular Brachytherapy well-type chambers.
AAPM Governance

Calibration Laboratory Assessment (CLA) committee:

- Subcommittee of the Therapy committee
- Charged with management and oversight of the ADCL’s
AAPM Governance via CLA

Accreditation Maintenance and Assessment:

- Accreditation reissued every four (4) years
  - Document Review
  - Compliance to the AAPM criteria evaluated
  - Onsite inspection by CLA members

- Surveillance Review in the intervening two (2) years
  - Document Review
  - Compliance to the AAPM criteria evaluated
  - Onsite inspection by CLA members
What is an ADCL?

- The AAPM Criteria states,

“The only type of laboratory accredited by the AAPM is a secondary standard laboratory with the capability of providing **direct traceability** to the National Institute of Standards and Technology (NIST). Such a laboratory is referred to as an **Accredited Dosimetry Calibration Laboratory (ADCL)**.”
AAPM Criteria:
Functions of an AAPM accredited ADCL

- Provides traceable instrument/isotope calibrations
- Serve as non-voting member of the CLA
- Secondary Standard Calibration Laboratory
- A technical resource for AAPM members
How does one know what types of accredited calibrations an ADCL can provide?

Scope of Accreditation

A list of specific tests and calibrations for which an ADCL has been found competent by a recognized accrediting agency.
### Air Kerma Calibration for Ionization Chambers for Radiation Therapy

<table>
<thead>
<tr>
<th>Parameter/Equipment</th>
<th>Range</th>
<th>Best Uncertainty</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ionization Chambers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Therapy Class</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Co$^{60}$ Air Kerma</td>
<td>Up to 44 cGy/min</td>
<td>1.2%</td>
<td>Reference and Field Class Chambers</td>
</tr>
<tr>
<td>Cs$^{137}$ Air Kerma</td>
<td>Up to 13 cGy/min</td>
<td>1.2%</td>
<td></td>
</tr>
<tr>
<td>X-rays</td>
<td>20 – 250 kVp M Series</td>
<td>1.2%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>30 – 100 kVp L Series</td>
<td>1.2%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>40 – 250 kVp ISO Narrow-</td>
<td>1.2%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>spectrum Series</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
What if I have equipment/isotopes not listed in an ADCL AAPM Scope of Accreditation?

- Diodes
- Ion chambers/solid state devices use for Mammography systems using W/Al, W/Ag, or W/Rh target filter combinations
- Light meters
- Voltage dividers/dynalyzers
- TLD’s/Nano dots
- Isotopes and Isotope applications
- Digital Multimeters

K&S Associates, Inc.
American Association of Laboratory Accreditation (A2LA)

- Nationally and Internationally recognized accrediting organization.
- With an A2LA accreditation, an ADCL can provide accredited/traceable calibrations, tests or measurements on items not listed in the AAPM Criteria.
- Check with your ADCL about A2LA accreditation.
- Review the ADCL’s A2LA Scope of Accreditation.
Value of AAPM ADCL Accreditation

- Synonymous with both quality and competence of an organization, based on international standard(s).
- The most appropriate way to ensure an organization’s competence to perform a specified task.
- Refers to recognition given to an organization by an authoritative body such as AAPM.