

## Commissioning - Nuclear Medicine Equipments

### Commissioning & Acceptance

**Commissioning & Acceptance in Nuclear Medicine** is the combined process of equipment testing, system configuration and verification checks, needed in order to get any equipment ready for clinical use.

Nowadays there are three major types of devices subject to commissioning and acceptance in any common Nuclear Medicine installation:

**Gamma-Cameras (GC)** - commissioning comprises all the tasks of insuring full conformance of the equipment in terms of energy window, sensitivity, spatial resolution or center of rotation among others.

**PET/CT** commissioning includes equipment acceptance and complete Quality Assurance coverage to insure full conformance of these medical devices, including the SUV validation, mandatory to begin the clinical work properly.

Besides these two types of equipment it is necessary to perform acceptance and Quality Assurance of the **Dose Calibrators (DC)** used in radiopharmacy to measure activities.

To give our customers more flexibility Mercurius Health provides these solutions independently or in a combined pack.

#### GC commissioning - What does it include?

- ✓ Physical inspection;
- ✓ Quality Assurance according to reference protocols (NEMA, IEC standards);
- ✓ Collimator touch pad and gantry emergency stop;

- ✓ Energy window setting for <sup>99m</sup>Tc and other radionuclides to be used;
- ✓ Background count rate;
- ✓ Intrinsic/extrinsic uniformity and sensitivity (visual and quantitative);
- ✓ Spatial resolution;
- ✓ Linearity;
- ✓ Multiple window spatial registration;
- ✓ Pixel size;
- ✓ COR calibration.

#### PET/CT commissioning - What does it include?

- ✓ Physical inspection;
- ✓ Quality Assurance according to reference protocols (NEMA, IEC standards);
- ✓ Uniformity;
- ✓ Normalization;
- ✓ Calibration factor from image voxel intensity to true activity concentration – SUV validation;
- ✓ Spatial resolution;
- ✓ Sensitivity;
- ✓ X-ray CT – numbers, alignment and performance.

**DC commissioning - What does it include?**

- ✓ Constancy;
- ✓ Stability;
- ✓ Accuracy;
- ✓ Linearity.

Though these are the most important, there are other equipments that should be tested and accepted before clinical utilization such as non imaging intraoperative probes, gamma counting systems or radiation monitoring devices.

**External Commissioning – benefits**

- ✓ An experienced team ensures execution with the utmost rigor and high quality standards;
- ✓ Time savings arising from experience and process optimization;
- ✓ Experience with measurement equipment and phantoms from all common manufacturers;
- ✓ Experience in GC and PET/CT equipments from all common manufacturers.
- ✓ For previously existing installations (with other equipments still at work), no need for staff allocation and consequent interruption or reduction in regular activity.

**Our Schedule\***

Day after installation	Completed Task
2	Acceptance
12	Equipments acceptance and commissioning
17	Report delivery & equipments available for practice

\*This schedule is representative of a standard situation of 1 GC and 1 PET/CT

**Frequently Asked Questions**

**What is Mercurius Health's response time compromise?**

For a standard installation with one GC and one PET/CT commissioned, Mercurius Health ensures the full task execution within less than 20 days.

**What information does Mercurius Health need prior to the execution of the job?**

Mercurius Health needs to know which equipments does the client has besides the vendor and models identification.

**Can you commission more than one equipment at the same time?**

Yes, depending on the availability of the equipment.

**What type of data do you collect?**

Mercurius Health acquires all mandatory data from your equipments and also an extended set of relative and absolute measurements for algorithm validation and future Quality Assurance reference.

**What material is handled to me?**

At the end of service a CD is given to the customer, including a general report describing the entire process and the final results, and also containing a collection of all acquired data.

**Does Mercurius Health have experience with my specific Gamma-Camera or PET/CT model?**

Mercurius Health team is proficient in all of the following major equipment vendors:

GE, Philips and Siemens.

**How far in advance do I need to schedule your service?**

You should contact Mercurius Health at least with 2 weeks in advance so that our team will be on site at the exact scheduled date.

**How can I contact you?**

Contact us by email:  
[info@mercuriushealth.com](mailto:info@mercuriushealth.com)

or by phone: (+351) 217 957 641

**Mercurius Health** is a Portuguese company focused in technical cooperation, consultancy, on-site operation and training in actual or prospective centers seeking for **edge solutions** in **Radiotherapy, Nuclear Medicine & PET** or **Cyclotron** based Radiopharmaceutical production.

With strong expertise proven for more than a decade, Mercurius Health integrates **multidisciplinary teams** of Medical Physicists, Dosimetrists, Radiation Protection Officers, Technologists, Physicians and experts in Radiochemistry/Radiopharmacy, able to fully operate a Center, to fulfill a specific need and/or to train local teams on-the-job.