RIGEL MEDICAL
GMC-INSTRUMENTS GROUP

Why test electrosurgical units?

The proper performance of ESUs is vital in ensuring the safety of patients and the management of hazards related to high frequency (HF) electrical current. ESUs must adhere to the performance and safety parameters of IEC 60601-2-2, which will be stated in the manufacturer's service manuals. Regular testing at periodic intervals ensures that these units adhere to these requirements and are safe to use.
ESUs are a common and vital piece of equipment in operation rooms. Due to its prevalence and high risk, it's essential that performance and safety of these devices can be verified.

HF performance measurements include current, voltage, crest factor and power. Power measurements ensure that the device output is accurate over a wide range of load resistances. There are variety of waveforms that require testing via both monopolar and bipolar electrodes.
High frequency leakage test of electrosurgical generators is specified as a requirement in the standard but may not be including in preventative maintenance schedule by the manufacturer. The test ensures that the ESU circuitry is properly limiting the amount of capacitive leakage of high frequency current. This is due to electrical current having a tendency to stray at frequencies exceeding 400 kHz, which leads to decreased functionality and potential thermal patient injury.

REM was a critical function developed when skin burns were prevalent. In monopolar mode, active electrodes provide high density energy in the form of high frequency current to the site. Neutral electrodes provide a pathway for the high frequency current delivered to the patient back to the ESU. A wide electrode surface area and low contact impedance reduces the current density, allowing current to dissipate whilst minimalizing tissue heating and reducing the risk of burns. The REM technique uses split electrodes to monitor patient impedance. An alarm will sound and the ESU

will deactivate once impedance exceeds specified impedance limits.

If you require more help, please contact us at https://www.seaward.com/gb/enquiry/.