

EPTA GUIDELINES FOR CHECKING DIGITAL EEG MACHINES

AT EACH RECORDING

- Visually check cables, check enough disc/recording space and check correct date and time.
- Apply and record an internal calibration signal and visually check sensitivity, DC offset, display alignment and appearance of filters.
- Measure electrode impedances and record.
- Select referential/acquisition montage and record. (It is recommended that this montage is checked again during the recording and at the end of recording).
- When re-viewing, check recorded internal calibration signal at the reader station.

EVERY THREE MONTHS

- Check physical condition of whole system, recorder, reader and server. Check cables, head-box, network points, printer, keyboard, cable connections and siting.
- Perform housekeeping : check default settings, delete unwanted montages, ensure ECG and photic stimulation selections are correct, delete unwanted word files, complete archiving.
- Using the external signal generator with attenuator box check the following at recorder and check at reader station:
 - Sensitivity
 - Step sensitivity
 - Amplitude linearity
 - Display Speed
 - Noise
 - Accuracy of montages
 - Filters
 - Check the photic stimulator marker

NEW MACHINE OR SOFTWARE UP-DATE

- Perform the three month check, and in addition, using the external signal generator, check at recorder and reader station :
 - Full frequency response graph
 - Common Mode Rejection Ratio
 - A-D converter

Minimum Specification for External Signal Generator

Frequency Range	0.1-200Hz
Frequency accuracy	±1% of full scale
Amplitude accuracy	±5% on 0.5 volt peak to peak range
Sinusoidal distortion	less than 0.5%
Square wave mark-space ratio	1:1±1%
Output impedance	50Ω

Any instrument used to check the calibration of another must, itself, be certified as calibrated to an appropriate standard.

The EPTA sub-group used a Thurlby-Thandar TG1010A available along with an annually renewable calibration certificate from Thurlby Thandar Instruments Ltd. but the cheaper TG315 is also suitable for EEG machines.

EPTA 1179 Attenuator EEG Performance Checker.

This should be used along with the signal generator to attenuate the signal and provide connections to all the amplifiers to enable the recommended tests to be performed.

This has now been updated and is available as the Digitimer model D179. (October 2007)



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