



Cardiology News

No. 022 October 2007

New! ECG-1250K/1350K

Thank you for your continuous support for selling our products.

This is the last part of our series of introducing the advantages of ECG-1250K and 1350K. This time we compare with Schiller AT-101/102. Do you remember the first and second advantage we introduced last time? It is '**Easy to View**'- **color and 12-lead display** and '**Usability**'- **data transfer and data storage**.

This time is '**Reliability**'. We hope you can enjoy learning a lot for your sales.

Reliability – IEC 60601-2-51

As you know, IEC is the international standards for all electrical, electronic and related technologies. The existing IEC 60601-2-25 is mainly safety standards for ECG. **IEC 60601-2-51** is a new standard for performance of ECG. IEC 60601-2-51 has two items:

- **Accuracy of ECG waveform measuring**
- **ECG waveform processing (hum filtering)**



We can say that the ECG which complies with IEC 60601-2-51 can provide accurate and reliable ECG data for doctors. This leads to benefits for the patient. All Nihon Kohden ECGs comply with IEC 60601-2-51.

As far as we know, the only manufacturers that offer ECG with IEC 60601-2-51 are Nihon Kohden and Philips.

Schiller's AT-101/102 doesn't meet IEC 60601-2-51.

For details, Please see the attached flyer.

As you can see, this IEC standard is a great tool for beating competitors.

That's the information for this time. Knowing this information will make a big difference in your sales activity. You can apply this information when dealing with our competitors. We hope it will be useful for you.

by Cardiology Team

Takahiko Shimada

Hideoki Watanabe

IEC-proven High Quality !!

Nihon Kohden Electrocardiographs meet IEC60601-2-51 the new World Standard for Electrocardiographs


IEC60601-2-51 is a new international standard for digital electrocardiographs.

IEC (International Electrotechnical Commission) is an **International Organization for Standardization** which establishes the international standards for safety and reliability of electric equipment.

IEC60601-2-51 requires the following specifications.




Requirement 1: Accurate ECG measurement



Good

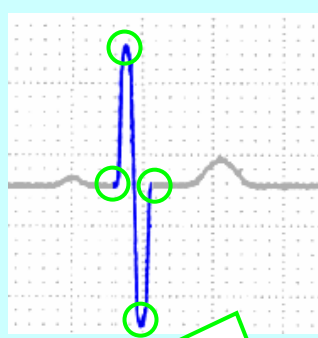
Compliant example



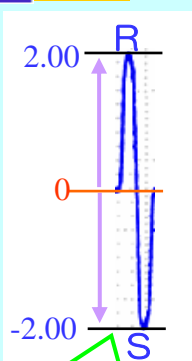
IEC sample waveform CAL20000

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Measurement



Accurate recognition of each point



Measuring each point

《Results》

Q wave 0.00mV

R wave 2.00mV

S wave -2.00mV


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Accurate Values

IEC sample waveform CAL20000


➔

Measurement



Not good

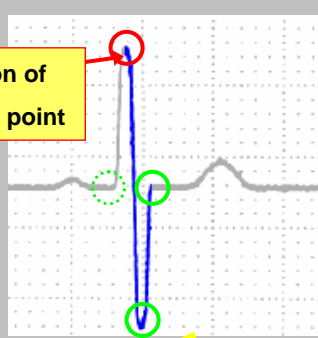
Non-compliant Example (mis-recognition of QRS)



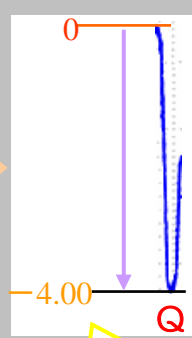
IEC sample waveform CAL20000

➔

Measurement



Mis-recognition of measuring points



Measured at wrong points

《Results》

Q wave -4.00mV

R wave 0.00mV

S wave 0.00mV

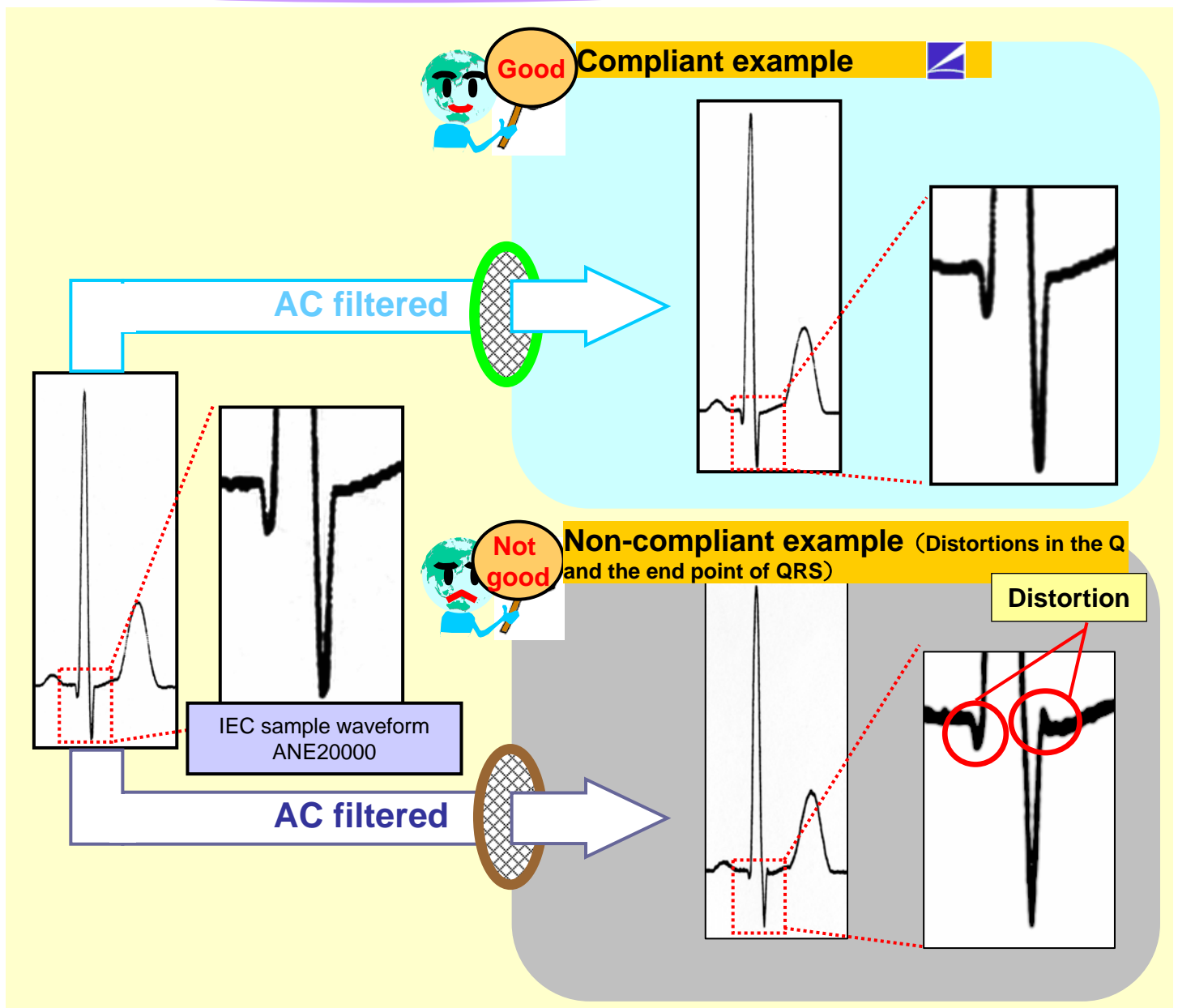
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Wrong Values

An electrocardiograph must correctly recognize and measure the beginning, peak and end points of each wave such as P, QRS and T wave in order to output accurate values. IEC60601-2-51 requires accurate recognition of each point of each wave and measured values within the stipulated range when tested with a specific waveform.

In other words, **electrocardiographs that comply with this new standard have guaranteed measuring accuracy.**

Requirement 2: Less distortion in AC filtering



Electrocardiographs use an AC filter to reduce AC noise in the electrocardiogram. However, if the AC filter is not appropriate, it can change the shape of the waveform and cause **distortion**.

A **distorted** waveform may lead to misdiagnosis or cause misanalysis by the electrocardiograph.

IEC60601-2-51 specifies that “**Notch FILTERS for line frequency interference suppression shall not introduce on ECG RECORD more than 25 μ V peak ringing NOISE in any LEAD when tested with the test ECG ANE20000**”.

Therefore, **distortion in an electrocardiograph complying with IEC60601-2-51 is very small and eliminates problems in actual use.**

■ ECGs complying with IEC 60601-2-51 (April 2007)
ECG-1550, ECG-1250, ECG-1350, ECG-9130/9132, ECG-9020/9022, ECG-9620