



Medical Device Reliability and Measuring Instrument Specifications

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ABSTRACT

At work medicine of devices reliability and measure of tools descriptions order about information given. Electronic of components reliability high requirements provide main resources these sizes straight away work efficiency complete to be is to provide.

Keywords: instrument, sensitivity, variability, scale, stability, guarantee, medicine devices, reliability screening, classification

Quick developing health storage in the field electron medicine to devices technical service show of place each more important than ever. Medical tools industry of patient safety increase for constant respectively high quality, high technologies and high efficient products work releases. Medical purposes used electron devices safety and critical care equipment compatibility to provide movement will do , that's it with together patients for acceptance to be done possible didn't happen risks reduce for safety and of work important requirements answer to give aspiration a must This technological of evolution basis electron medicine of devices reliability planning and is an assessment.

Work purpose: electronic medicine of devices reliability stages analysis to do and in practice application order study.

Reliability is medical of equipment known one to conditions compliance when done given time between demand to be done functions do it get is the ability.

If the statistic of terms if used, it as follows describe can:

Reliability is of the device from work without going out given time in the interval or given cycles in number activity show is a possibility.

That's it note to do reliability drift or noise description being is not considered It is regulated exploitation to do conditions compliance when done device from the ranks until you leave (from work until exit) that

passes temporary or constant the time reflection makes.

Reliability very important description being to be considered although medical equipment work producers him rarely cases they show Probably of this reason him measure common by acceptance done methods in its absence.

For example, there are many in the USA electron tools for exploitative reliability to determine method as from work exits between averages the time count procedure is used.

This is the procedure of the device separately of the elements from work exits between average time from the calculation after whole of the device from work exits between average the time to determine is based on this external factors - temperature , pressure , mechanical stresses , shielding level and etc. effect account get necessary will be.

Unfortunately, from work exits between average the time count procedure reliability straight away evaluation enable does not give, and such the description in practice apply difficultly. That's it because of medical of equipment reliability to determine most of the time they are qualified to tests is drawn. They are the worst under conditions that will be held.

For example, sensors maximum worker 1000 hours at temp during continuously to work forced will be done. However this style of external conditions sharp changing situations, for example, temperature promptness with increase account can't It surrounds the real sensor standing in the environment work imitates. Such qualified of tests to the front three tasks put: from work exits between average the time evaluation of the sensor later on improvement for in construction the weakest place (first being from work coming out place) and whole of the system exploitation the term to determine

"Accelerated to determine wear and tear another one possible has been a method just like real exploitation to do modes such as parameters from the summation use is the maximum upload and enable/disable cycles are the same account includes, however in this the system check surrounded standing of conditions extended in the range will be

transferred (passport in the data regulated depending on).

In this of sensors worker descriptions there in the description shown from the borders to exit road put , but normal operation conditions they are demand to be done to values return it is necessary.

The instrument reliability - it defined indicators time during storage feature means. These indicators from the border out leaving the tool ability decreased since he left proof gives.

Measuring of tools descriptions the following in order recommendation will be:

1. Tool error . Measuring of the instrument error absolute, relative and given will be.

2. Measurement of the instrument accuracy is description instrument error to zero approach shows.

3. Sensibility is measure of the instrument main from the parameters is one of the instrument exit signal to change that's it of change the cause is input signal received ratio being measured to Catholicism relatively of the instrument sensitivity determines.

Sensitivity absolute and relative to species is divided.

$$Sa = D1 / Dx ;$$

$$Sa = D1Dx / (1x);$$

4. Scale of the piece value - instrument of the scale two side - side signs between right coming size to the value of equal to will be and instrument constancy is called Piece value absolute of sensitivity reverse is the value of:

$$S = 1 / Sa = Dx / Dix.$$

5. Measurement of the instrument stability - of the instrument metrological features time according to that it will not change pointer is quality. of the instrument features time according to change addition to the error take will come

6. Excess loading ability - to tools permission done without loading rather endurance shows .

7. Of the instrument of the show variability (variation) – unchanging external in

the circumstances being measured size real to the value of right coming instrument of showing between the most big difference with is determined . Show variability basically instrument in parts friction and unemployed interval, in elements mechanic and magnet to hysteresis depends will be.

8. Tool of the indicator settling down or calm down time - magnitude measure from time starting from of the instrument excitable part vibration of the amplitude absolute error from the level less has been until time past to the period it is said. This era is analog instruments for mostly 4 seconds by doing defined. Thermoelectric and electrostatic tools for this time is 6 seconds fixed , digital in tools measure which is measured as time size when measuring steady show time or to measure start during new the result until past to time it is said that count device standardized in error show need.

9. Measuring of the instrument thoroughness - the tool given descriptions standardized in the circumstances, defined until time polish to get it is said. Tool thoroughness main criterion him average non-stop performance time is :

$$T = e(t/n),$$

In which T- of the instrument non-stop work time, n - rejections the number

10. Warranty the term of the product preparer factory's own product, tool to use to the rules compliance did without right to work surety gave on the time it is said. For example, micro ammeter M 266 M - enterprise 36 months inside the tool to edit, to provide and for free alternately to give own to the nose takes.

Reliability screening Definition: Reliability screening is known properties have products choose or of products early from work exit eliminate reach for one-row inspections and tests.

Reliability screening purpose: First: to requirements answer giving products choose. Two: of products early from work exit eliminate to achieve

Reliability screening Importance: Components of the party reliability level early

malfunction products check through increase can. Simple in the circumstances failure level one once to the degree and even two to the degree until decrease can.

Summary: Electronic of technology development with in equipment electron of components application grow up is going and electron of components reliability high requirements before driving. This is it at work electron of equipment high reliability of provision main resources given being, this sizes straight away work efficiency complete fulfillment provides.

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