On the Data Processing Methods of Surface Antenna's Inspection

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ABSTRACT

The data processing methods of surface antenna's inspection are deeply discussed in this paper. There are two steps from 3D measuring coordinates to useful information (for example, surface standard deviation): coordinate transformation and surface standard deviation calculation. The first step is more important. Three methods (surface free fitting, common point coordinate transformation and CAD surface fitting) are discussed in this paper. The mathematic models and formulas of these methods are deduced and some results are given finally. According to the theoretical analysis and actual calculation we can see that the CAD surface model fitting is the best method because it needs neither the surface equation nor common point but the CAD surface and its result is reliable. If there is no CAD surface model but a number of common points, then the common point coordinate transformation is a better method, but its result is influenced by the accuracy of common points. If there exists neither CAD surface model nor common point, the surface free fitting is also a good method, which has a high surface precision but the calculated surface may be shifted.

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