

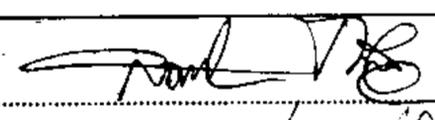
716547 : MAJOR INDUSTRIAL ENGINEERING
 KEY WORD: MEASUREMENT SYSTEM / STATISTICAL TECHNIQUES
 SOMPOAP TALABGAEW : DETERMINATION OF VARIATION CONTROLLING
 METHODS OF MEASUREMENT SYSTEM BY GRR TECHNIQUES : ELECTRONICS
 PRODUCTS PLANT. THESIS ADVISOR : ASSO. PROF. JANTANA JUNTARO. 208 pp.
 ISBN 974 - 635 - 527 - 9

The objectives of this research were to study the main factors that effect the measurement system variation by the techniques called Gage Repeatability and Reproducibility (GRR) . The study of the measurement system variation are composed of both actual process variation and measurement variation that showed the following mathematics model $\sigma^2_{OBSERVE} = \sigma^2_{ACTUAL} + \sigma^2_{R\&R}$, the measurement variation are composed of both equipment variation (EV) and appraisers variation (AV) that showed the following mathematics model $\sigma^2_{R\&R} = \sigma^2_{EV} + \sigma^2_{AV}$. This research studied five equipments which are Microscope,Thickcheck,CMI,Vernier caliper and Micrometer.These criteria of the experiment are

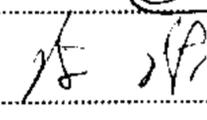
1. Three appraisers per one equipment.
2. Two times trial per each appraisers.
3. Eighth - ten pieces of parts per 1 equipment.

This research found that in using digital display equipment ,most of variation are equipment variation,so were improved equipment calibration ,appropriate method and gage using.Using the mechanical equipment ,most of variation are appraisers variation so were improved working method and measurement method.From these improvements,the percentage of R&R of each equipments are continuously decreased and % R&R are accepted in the GRR theory criteria.

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