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SUMALEE YOURONGRALNG : THE FEASIBILITY STUDY OF A SMOKE AND SOUND LEVEL INSTRUMENT IN AUTOMOTIVE MONITORING. THESIS ADVISORS : JIRASUK POONPON, M.S. in E.E., SUCHART NAWAGAWONG, M.Sc., CHUMPORN YUWAREE, M.Sc., KRITSANARUG TEERARUT, M.Sc., PRADIT BOONTUNTRAPIWUT, M.Sc., 145 p. ISBN 974-663-174-8

The purpose of this thesis was to assess the feasibility of a smoke and sound level testing instrument for automotive monitoring. The instrument was designed to measure smoke quantity levels and sound levels. This instrument was built to improve environmental care and decreasing environmental impact. To test smoke quantity levels a light beam use as shined through smoke exhaust then sensing with an electronic photocell changed the light measurement to an electrical signal in meter scale. Sound level testing also changed the measurement to an electrical signal in meter scale with a sound pressure. The study sample group consisted of 40 diesel engines.

The findings of this study showed that the measurement ranges of the testing instrument for black smoke was 0-100 percent for sound pressure levels. The measurement ranges were 40-120 dBA. Statistical testing was done by comparing the data of the 40 diesel engines measuring these smoke and sound . The statistical data show that the level of the measured data by the two instruments is nearly the same at 0.05 significant value.

In summary the results of this study suggests that affordable, light weight, easy to use testing instruments for automotive monitoring is available and can be used to assess development of Thailand environmental programs.