

4th ATRANS Symposium: ATRANS STUDENT CHAPTER SESSION
26th August 2011, The Imperial Queen's Park Hotel, Bangkok

Development of a Motorcycle Onboard System for Driving Pattern and Exhaust Emissions Measurement

Paper Identification number: SCS11-010

by

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Presentation Outline

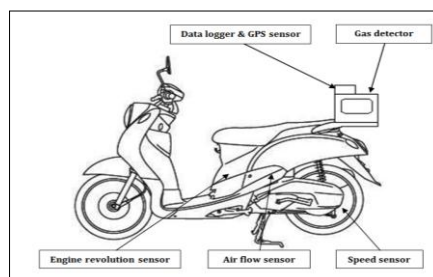
1. Introduction
2. Onboard Measurement System Development
3. On-road Testing Results and Discussions
4. Development and Application
5. Conclusion and Further Studies

1. Introduction

- The developed onboard measurement system.
- The developed driving cycle was applied to measure the emission factors and fuel consumption.
- It is less expensive compare to testing in a laboratory.



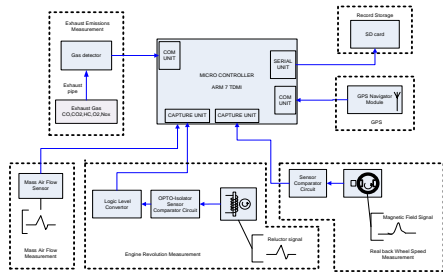
2. Onboard Measurement System Development



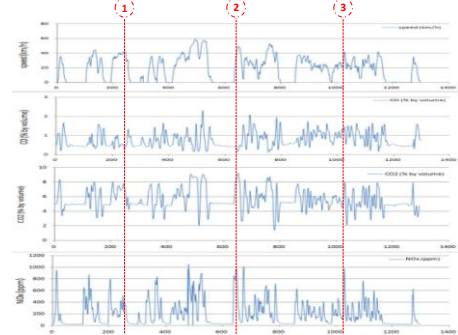
Onboard Measurement System Development (cont.)

➤ Data Logger

Data Acquisition Diagram

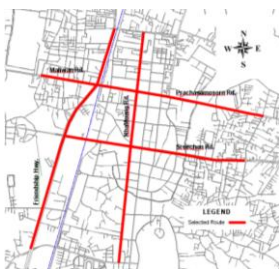


3. On-road Testing Results and Discussions



3. On-road Testing Results and Discussions (cont.)

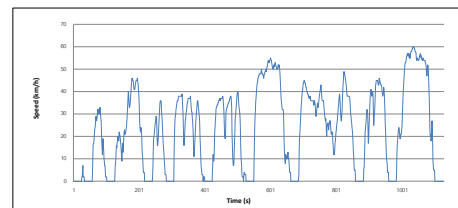
Selected Routes for On-road Data Collection



No.	Selected Route	Distance (km)	Travel Speed, km/hy (LOS)	Traffic Volume, PCU (VIC)
1.	Friendship Hwy.	3.9	≥ 50 (A) 40 – 49 (B)	1,737 (0.40)
2.	Sreechan Rd.	3.0	30 – 39 (C)	1,235 (0.66)
3.	NhaMuang Rd.	3.8	20 – 29 (D)	820 (0.62)
4.	Prachasamo sorn Rd.	2.8	15 – 19 (E) < 15 (F)	1,054 (0.7)
5.	Maliwan Rd.	1.0	15 – 19 (E) < 15 (F)	2,149 (0.68)

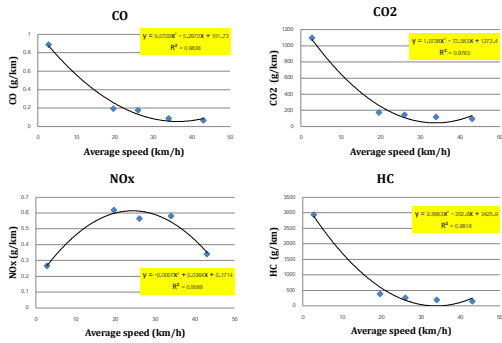
4. Development and Application

- A. Driving Cycle Development
- B. Emission Factors Development



$V_{max} = 60 \text{ km/h}$, $Acc_{max} = 3.056 \text{ m/s}^2$, $Dec_{max} = -3.056 \text{ m/s}^2$, $Length = 1,128 \text{ s}$, $Distance = 7.375 \text{ km}$

Development and Application (cont.)



5. Conclusions and Further Studies

- The developed equipment could be applied to collect the driving pattern and exhaust gas of the testing motorcycle.
- The collected data could be used to develop the driving cycle and emission factors.
- Study distance base and time base driving cycle

Thank you for your attention.