

Author's Declaration

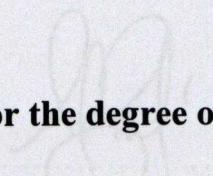
Project entitled Cabin Indoor Air Quality Assessment in the Commercial Passenger Fleet is my original research work. Wherever contributions of others are involved, every effort is made to acknowledge them in the literature and acknowledgements of collaborative research and discussions. This project was under the guidance of Mr Megat Azman Bin Megat Mokhtar as Project Supervisor. It has been submitted to the Faculty of Health Sciences in partial fulfillment of the requirement of Bachelor (Hons) of Environmental Health and Safety.

**UNIVERSITI TEKNOLOGI MARA**

**CABIN INDOOR AIR QUALITY ASSESSMENT IN  
THE COMMERCIAL PASSENGER FLEET**

**AUF BIN AZMIL**

Student's Signature:



**Project submitted in fulfillment of the requirements for the degree of**

**Bachelor (Hons.) in Environmental Health and Safety  
Faculty of Health Sciences**

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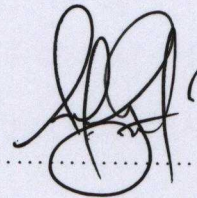
Date 4/4/2015

**JULY 2015**

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## Abstract

### CABIN INDOOR AIR QUALITY ASSESSMENT IN THE COMMERCIAL TERBANG PASSENGER FLEET

Auf Bîn Azmil

Aircraft cabin are crowded places where the cabin crew perform their duty and passenger have seat for long and lack of room. High occupant density in airplane cabin density make people feel cramped and uncomfortable and put their selves at the risk of health problems. Hence, it is vitality important that the health and comfort of cabin crew and passengers are ensured. The health and comfort of air travellers depends on the complex interplay of several factors. Some important factors are efficiency of the ventilation system to allow fresh air in the occupied zone, concentrations of contaminants, temperature and humidity. The study was conducted in commercial passenger cabin aircraft with short-haul. This study design is convenience random sampling. Sampling data collection is direct reading by using Indoor Air Quality Meter 7545 (TSI Incorporated, USA) and ppbRAE 3000 (RAE System Co. Limited, USA). A descriptive analysis that is Microsoft Excel 2010 and statistical analysis package is Statistical Package for the Social Science (SPSS) version 18 was used in this study. The study was found that temperature and relative humidity in commercial passenger aircraft between 21.4 °C to 32.0 °C and 19 % to 76.9 % respectively. Concentration of carbon monoxide, carbon dioxide and total volatile organic compounds are 0 ppm to 3.1 ppm, 808 ppm to 2862 ppm and 0µg/m<sup>3</sup> to 4050µg/m<sup>3</sup> respectively. There was significantly different between Cruise and Landing ( $p < 0.03$ ) and Take-Off and Landing ( $p < 0.01$ ). In conclusion, to reach and provide healthy and comfortable environment for passenger and cabin crew, it is necessary to achieve the limit value of temperature, relative humidity, carbon monoxide, carbon dioxide concentration and total volatile organic compounds in the commercial aircraft cabin from Federal Aviation Administration and American Society of Heating, Refrigerating and Air-Conditioning Engineers.