# DESIGN OF PYRAMIDAL HORN ANTENNA AND TESTING THE EXISTING SHIELDED ROOM PERFORMANCE IN TERMS OF REFLECTION OF 2GHz MICROWAVES SIGNAL

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# DECLARATION

In accordance with the rule of Faculty of Electrical Engineering, I hereby submit a thesis entitled "Design Of Pyramidal Horn Antenna and Testing the Existing Shielded Room Performance In Terms Of Reflection of 2 GHz Microwaves Signal", as a partial fulfillment of the requirement for the degree of Bachelor of Electrical Communication Engineering (Hons.) I also certify that all the work in this thesis is the result of my own work, the result which are not of my own, have been clearly cited in the references in this thesis.

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# ABSTRACT

The increased use of the radio spectrum for communications, particularly in the microwaves region has created a need for characterization of system performance, in design and manufacture. The antenna has become and increasingly important parameter within the development of communications system.

This thesis deals with the design of a Pyramidal Horn Antenna. An iterative technique to design the Pyramidal Horn Antennas is presented. It was design to operate at 2 GHz frequency with 15dB gain. The simulated radiation pattern and the measured radiation pattern as well as the measured gain and beamwidth of the designed horn antenna are presented to demonstrate the performance of the horn antenna.

This is followed by reflections measurement due to 2 GHz microwaves signal inside the existing RF shielded room at 9$^{th}$ floor Universiti Teknologi Mara Pulau Pinang (UiTM). The measurement had been carried out since the RF shielded room originate used for the antenna measurement purpose. However, the measurement that been taken was exposed to the reflections that occur in the shielded room caused by various things consequently lead user to obtain inaccurate result. This study was implemented to obtain the major part which contribute to the reflection in the RF shielded room hence proof it in document that there are lots of reflections occur in the shielded room.

Besides, this thesis also deals with the analysis of the reflections measurement of 2 GHz microwaves signal due to external signal in the RF shielded room. The purposed of this measurement is to identify if any 2 GHz signal pass through the RF shielded room. Since if there any external signal inside the RF shielded room it also can caused inaccurate and imprecise measurement.