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Glowing Lines Mark (GLM) Parking Design

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ABSTRACT

Abstract: The mark line is one of the road accessories which is very important reference for driver to park or drive their vehicle in the right way. Issue of parking lines is not a new problems and this matter are always happen when the parking lines are not visible or clear, causing trouble to vehicles' driver to park their vehicle properly in the box, especially during the night when there is no street light at the parking lot. The limited visibility of the parking space causing the users to take the easy way by parking their vehicle unorganized. Therefore, the luminescence paint is chosen as additional material in road line marking paint. As it main properties are glow in the dark, it resulting parking lines mark can be seen clearly at night and it help users to park their vehicle properly. The ratio of the mixture of the glowing lines mark was testing for the several samples to get the best result. The construction of the line mark based on the result of best sampling was realised at the parking lot at the Quarters of Polytechnic Tuanku Sultanah Bahiyah, Kulim Kedah. Then, the satisfaction data from users was collected. The road line marking paint as a base using 3 layer of coating before apply the luminescence paint. The luminescence paint determine by using 2-5 layer of coating. The best result has been choosing to construct the line mark at the parking lot. From the observation the glowing lines become fade after a few hour. The photoluminescent paint only survives for less than 2 hour. The photoluminescent paint can be used as to make the lines mark more clearly at night but it can't be used for long hour.

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Keyword: line mark, road line, luminescence paint

1. INTRODUCTION

Parking is the action of vehicle that occupied the space where the convenient are for temporarily stopping as required. Parking facilities is one of importance factor in providing a perfect transport policy in an area. Parking lot lines are easily faded over time and it is very important for the vehicle users for temporarily unoccupied the space. Lines that are wear off are hardly to see the direction that the users should drive, whether sure or not the users parking their vehicle within the space correctly. Sometimes there are some of the parking lot area does not have streetlights to lighten up the parking area at night which is resulting extreme invisible parking lines and struggling driving within the lot spaces. The consequent show that the vehicles are in improper arrangement of vehicles and some user's behavior in taking advantages of the poorly visible parking lines.

Innovation of glowing line mark (GLM) using the photoluminescent paint as the improvement for effectiveness of the parking lines. This lines luminous effect to assist the sight of the vehicle driver's park their cars precisely at the parking space. Photoluminescent have reaction by absorption of UV light to produce or release the energy from light emission to form a self luminous assist to afterglow in a dark places. Reflective road line marking paint use as the base for the innovation of glowing line mark (GLM) for optimal glowing from the photoluminescent paint, where the properties of the reflective road line marking paint has higher index of reflective micro glass sphere beads with higher intensity for a night safe driving.

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The combination of the reflective road line marking paint with layers of photoluminescent in innovation of glowing line mark (GLM) create a afterglow. The innovation are to determine the ratio of the mixture, to identify the workability of luminescent paint as additional material in road marking paint and as solution in designing a new road marking to recover the vehicle issues parking lot.

2. METHODOLOGY

This research is focused on determine the ratio of the mixture. Reflective road line paint is an Alkyd Thermoplastic Resin modified solvent based air drying paint with reflective index micro glass sphere beads which reflect light with higher intensity and making night driving safer. Because of that the used of roadline paint as a base is 3 layer. To make the parking lines more clearly at night, the photoluminescent paint has been choosing as additional material. Because it characteristic is glow in the dark, it has been used of 2 and 3 layer after coating with road line paint. The glowing lines mark was construct at quarters QD Politeknik Tuanku Sultanah Bahiyah. The observation of the workability of the photoluminescent paint done by using LUX meter tools. It is used as a measure of the various level of LUX involved maximum and minimum light conditions. It is also best for effective calibration and foot candles. Maximum is the number of light that allowed at the surface.

3. GLOWING LINES MARK (GLM) PARKING DESIGN

Glowing lines mark is a new innovation for lines mark at parking lot. The used of the photoluminescent paint as the improvement of effectiveness of the parking lines to aid some luminous in lines assist for the sight of the vehicle users to drive their vehicles more precise within parking space. The combination of the reflective road line marking paint with layers of photoluminescent in innovation of glowing line mark (GLM) create a afterglow. The innovation are to determine the ratio of the mixture, to identify the workability of luminescent paint as additional material in road marking paint and as solution in designing a new road marking to recover the vehicle issues parking lot.

4. ANALYSIS DATA

Research has been done to know the ratio of the mixture to construct the line parking. The data obtained will be scheduled in the form of tables to facilitate the analysis of the data.

Table 4.1: The ratio of the mixture of glowing line mark

The ratio of road line marking paint (layer)	The ratio of the photoluminescent paint (layer)
3	1
3	2
3	3

From the table 4.1, the ratio of road line marking paint is same because it is a base of coating. For the ratio of the phtoluminescent paint there 1 layer, 2 layer and 3 layer. The more ratio of the photoluminescent, the brighter it will be.

Table 4.2: Result of Lux Meter Tool

Time	LUX	Max
8.00 pm	3	72
8.30 pm	1	56
9.00 pm	0	14
9.30 pm	0	1

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