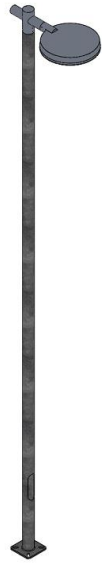


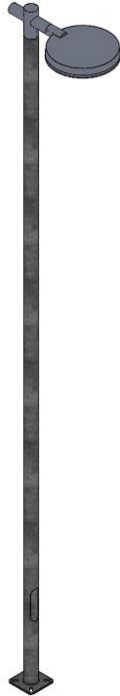


<b>Report No.</b>	SPD160114
<b>Manufacturer</b>	Ligman Lighting Company Limited 17/2 Moo 4, Monthong, Bangnampreaw, Chachoengsao Thailand.24150
<b>Description of sample</b>	Product name : STEAMER Brand : LIGMAN Model / Type : SPD160114 Cover similar design : -
<b>Sample characteristic and condition</b>	-
<b>Date received</b>	-
<b>Test date</b>	24/2/2020
<b>Test standard</b>	Wind speed Simulation
	
<b>Certified by</b>	
 (THEERAWAT TUBIER) Product Development Designer Mechanical Test Group Date 24/2/2020	 (PONGSIRI DUANGSEANG) Laboratory Manager Date 24/2/2020

**Material Properties**



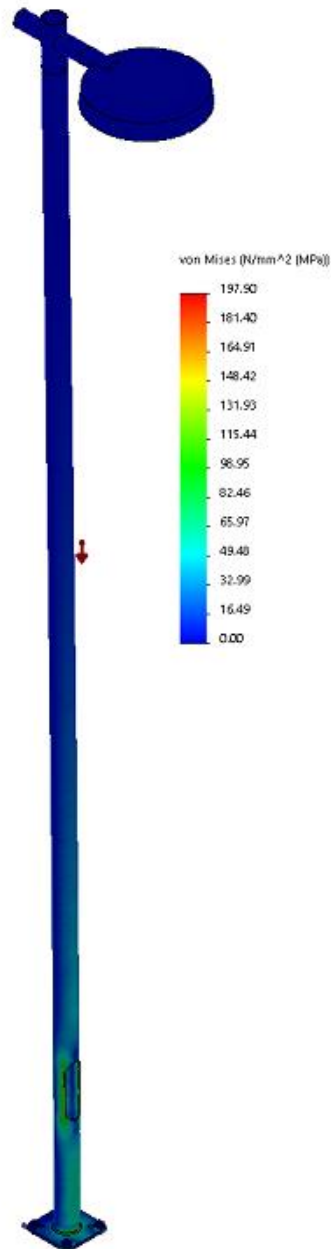
Properties	
Model type:	STEAMER
Steel pole	diameter 114 mm, high 6000 mm.
Default failure criterion:	Max von Mises Stress
Material:	Galvanized Steel
Yield strength:	204 N/mm <sup>2</sup>
Tensile strength:	357 N/mm <sup>2</sup>
Elastic modulus:	20000 N/mm <sup>2</sup>
Poisson's ratio:	0.29 N/A
Mass density:	7870 g/cm <sup>3</sup>
Shear modulus:	80000 N/mm <sup>2</sup>
Thermal expansion coefficient:	0.000023 /K
Maximum of wind speed	180 Km/hr

**Unit**

Unit system:	Length/	Temperature	Angular velocity	Pressure/Stress
SI (MKS)	mm	Celsius	Rad/sec	N/mm <sup>2</sup> (MPa)

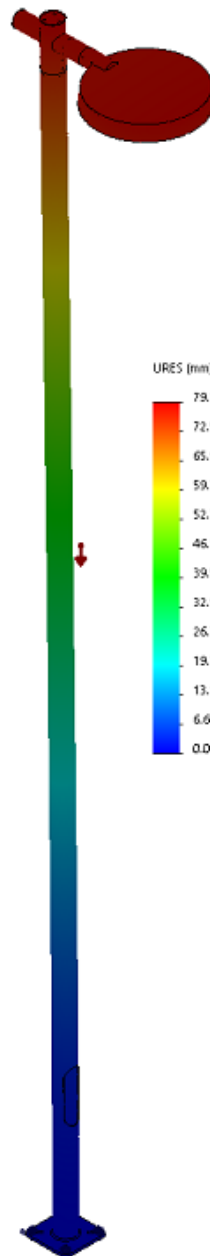
**Results of Model.**

Type	Maximum	Yield strength
VON: von Mises Stress	197.90 N/mm <sup>2</sup> (MPa)	204 N/mm <sup>2</sup> (MPa)



**Results of Galvanized Steel pole diameter 114 mm, high 6000 mm.**

Type	Minimum	Maximum
URES: Resultant Displacement	0 mm	79.16 mm



Report no. SPD160114

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**Summary****For Galvanize Steel pole diameter 114 mm, high 6000 mm.**

Resultant Displacement : Maximum of Resultant Displacement 79.16 mm. &lt; 150 mm. (2.5% of pole high 6000 mm.)

**PASS****FAIL****SPD160114 Model : Can withstand wind speed maximum 180 Km/hr****For Galvanized Steel pole Model.**Von Mises Stress : Yield strength 197.90 N/mm<sup>2</sup> (MPa) < MAX VON Mises Stress 204 N/mm<sup>2</sup> (MPa)**PASS****FAIL****SPD160114 Model : Can withstand wind speed maximum 180 Km/hr**