

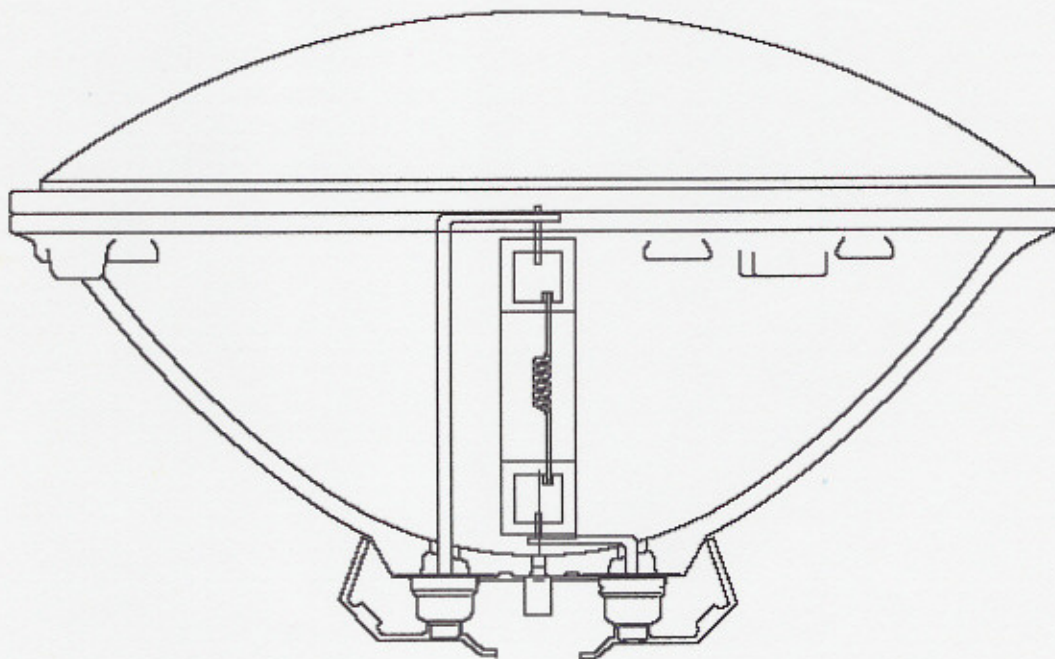


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Locomotive 30V 200W PAR56 Head lamp Performance Report

Beam Angle Intensity Study



Operating Mode:

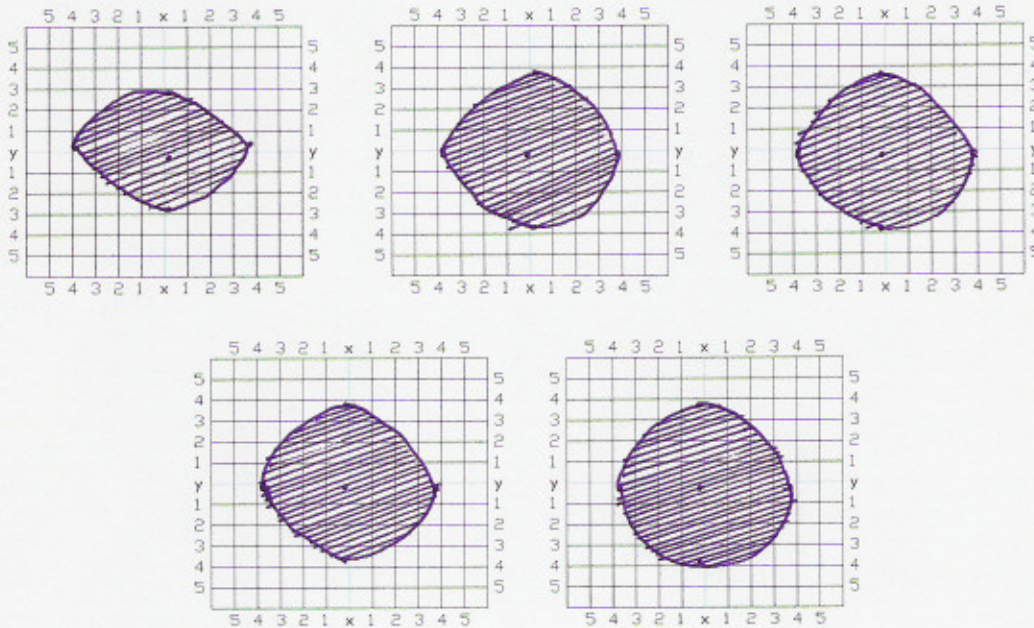
- Lamp is powered at 30V

Source To Detector Distance = 15 FT (4.57 M)

Result:

Amglo / Halogen P/N: AHQV5630V200WCS

Lamp No	Volts (DC)	Current (Amps)	Wattage (Watts)	Candlepower	Beam	Angle	+/- 7.5	Degree	Beam	Angle	+/- 20	Degree
				CBCP	Left	Right	Up	Down	Left	Right	Up	Down
1	30	6.3	190	240,500	4050	4432	3375	3150	702	495	690	640
2	30	6.3	190	247,500	4117	5175	4522	3712	697	517	650	602
3	30	6.4	192	234,000	4050	4950	4275	3757	765	562	705	592
4	30	6.4	192	245,250	3825	3285	4815	3285	787	495	720	650
5	30	6.3	190	238,500	3600	4365	4950	3757	810	517	701	580
AVG	30	6.4	190.8	241150	3928.4	4441.4	4387.4	3532.2	752.2	517.2	693.2	612.8



Conclusion:

Based on the above study it is clear that Amglo Halogen lamp 30V 200W PAR56 meets the FRA requirement referenced in 49 CFR Part 229.125 (a) (1), 229.125 (a) (2) and 229.125 (d) (2). Up to date Amglo has manufactured approximately 150 lamps to enable final design implementation for production. The current design is frozen and implemented on our Bill of Material. Lamp life on the Halogen lamp is above 1,000 hours versus about 350 on the incandescent.