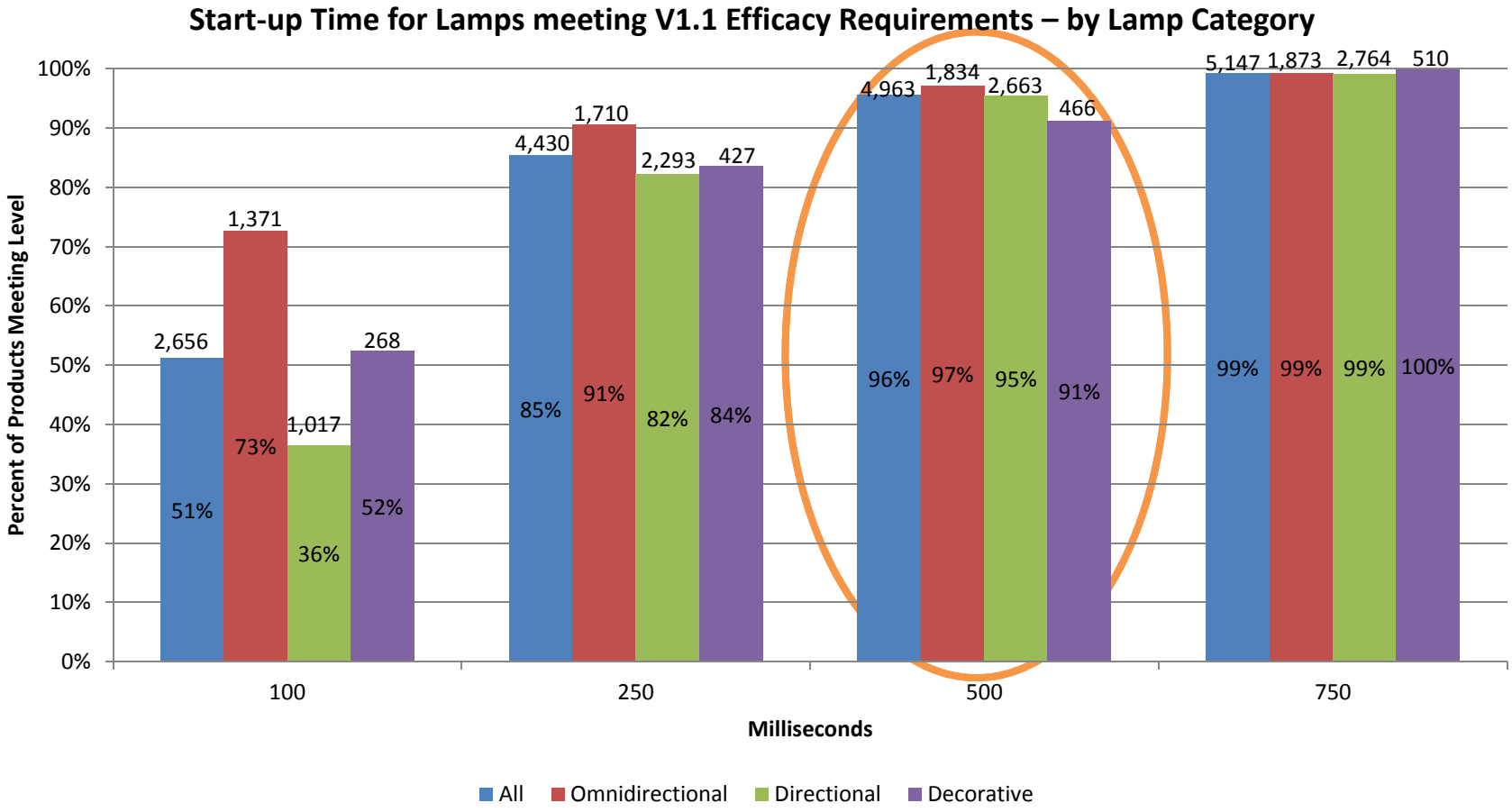
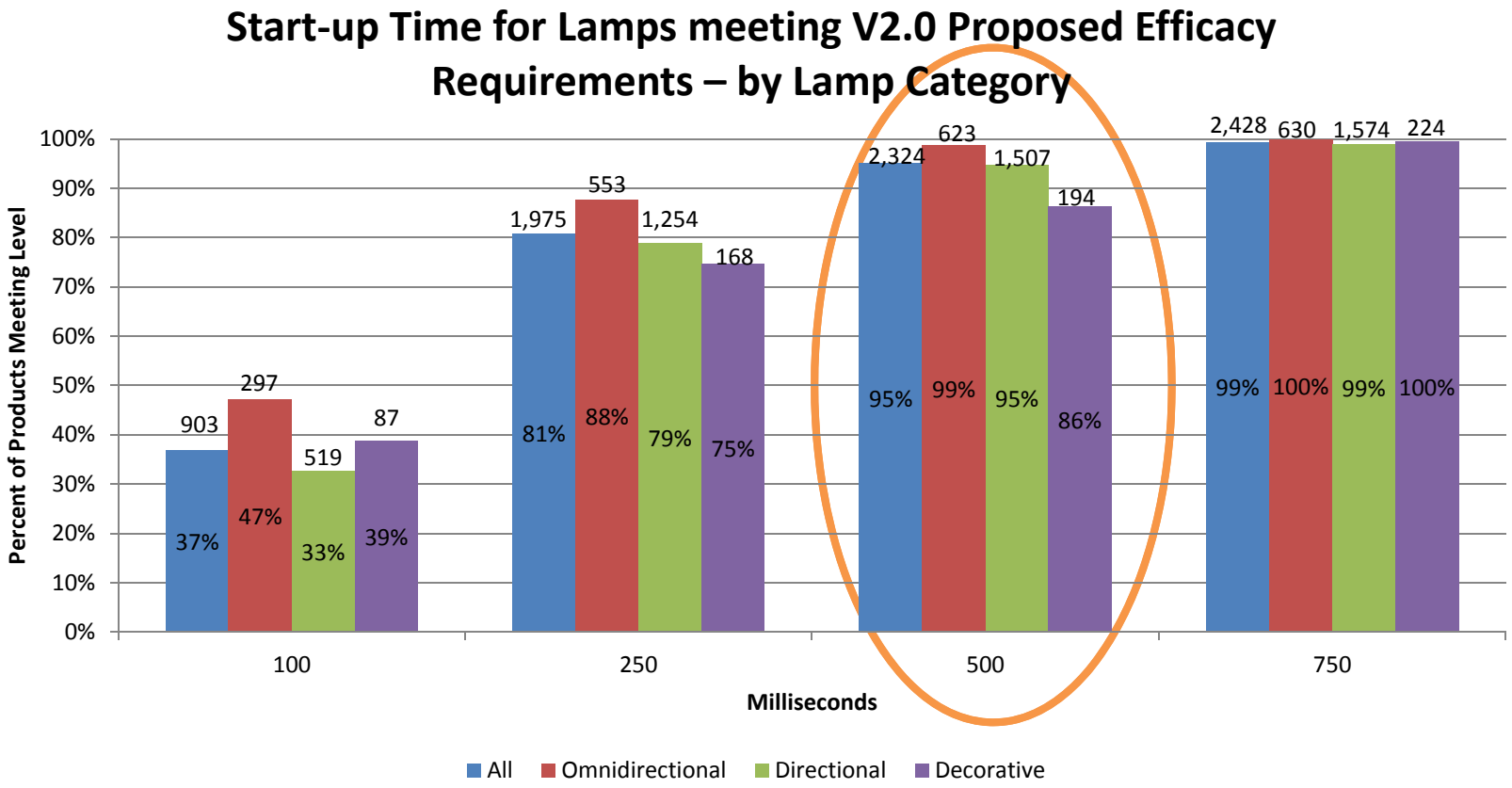
Start-up Time, Run-up Time, and R9 Analysis for ENERGY STAR Lamps V2.0 Draft 1

Section 11.4: Start Time



- Data pulled from QPL on 3/5/15
- V1.1: Start time must be ≥1000 milliseconds of application of electrical power
- Proposed V2.0: Start time must be ≥500 milliseconds of application of electrical power

Section 11.4: Start Time



- V1.1: Start time must be ≥1000 milliseconds of application of electrical power
- Proposed V2.0: Start time must be ≥500 milliseconds of application of electrical power.
  - 95% of lamps that meet the proposed efficacy levels have a start time of 500 milliseconds or less.

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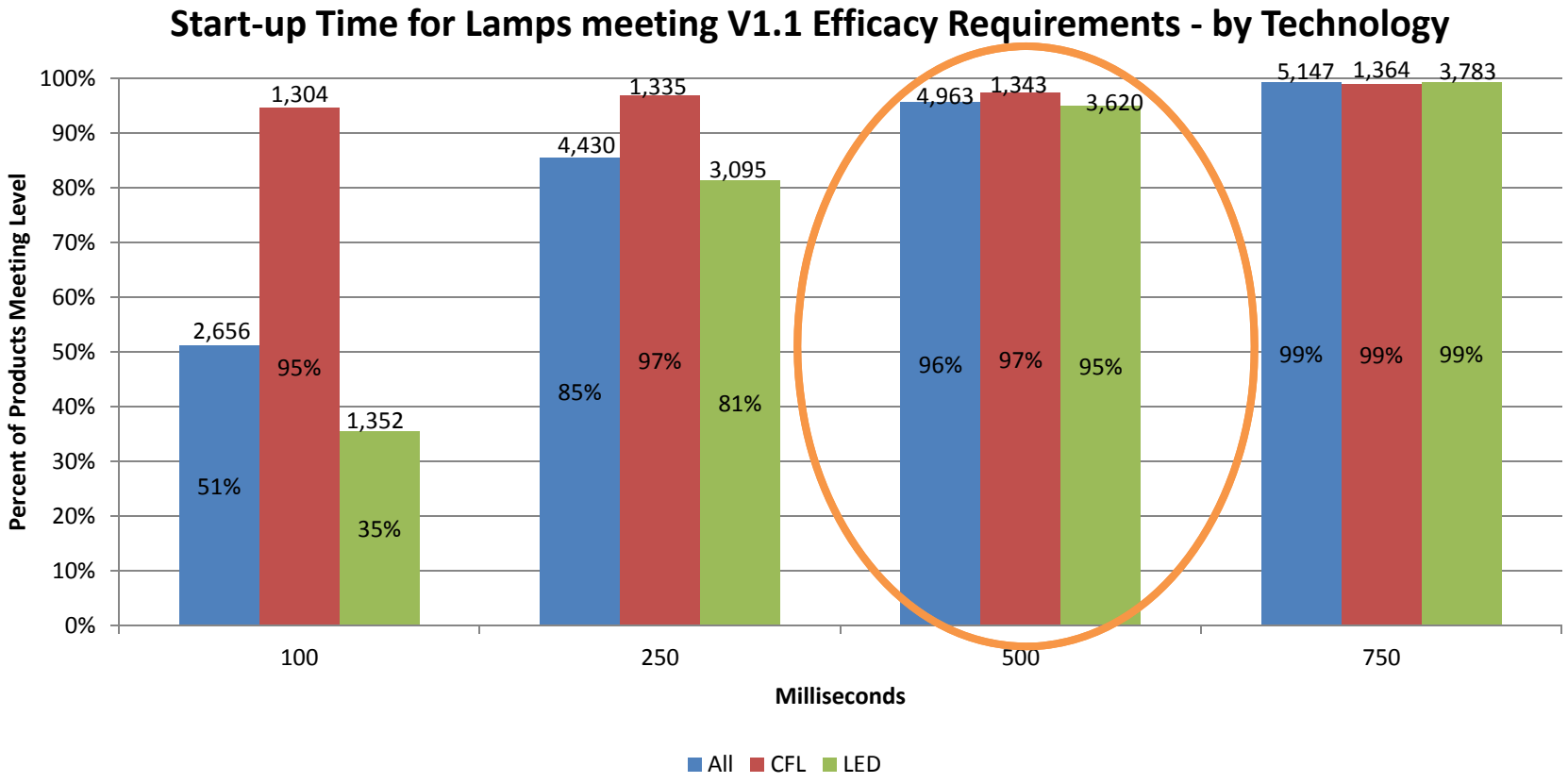
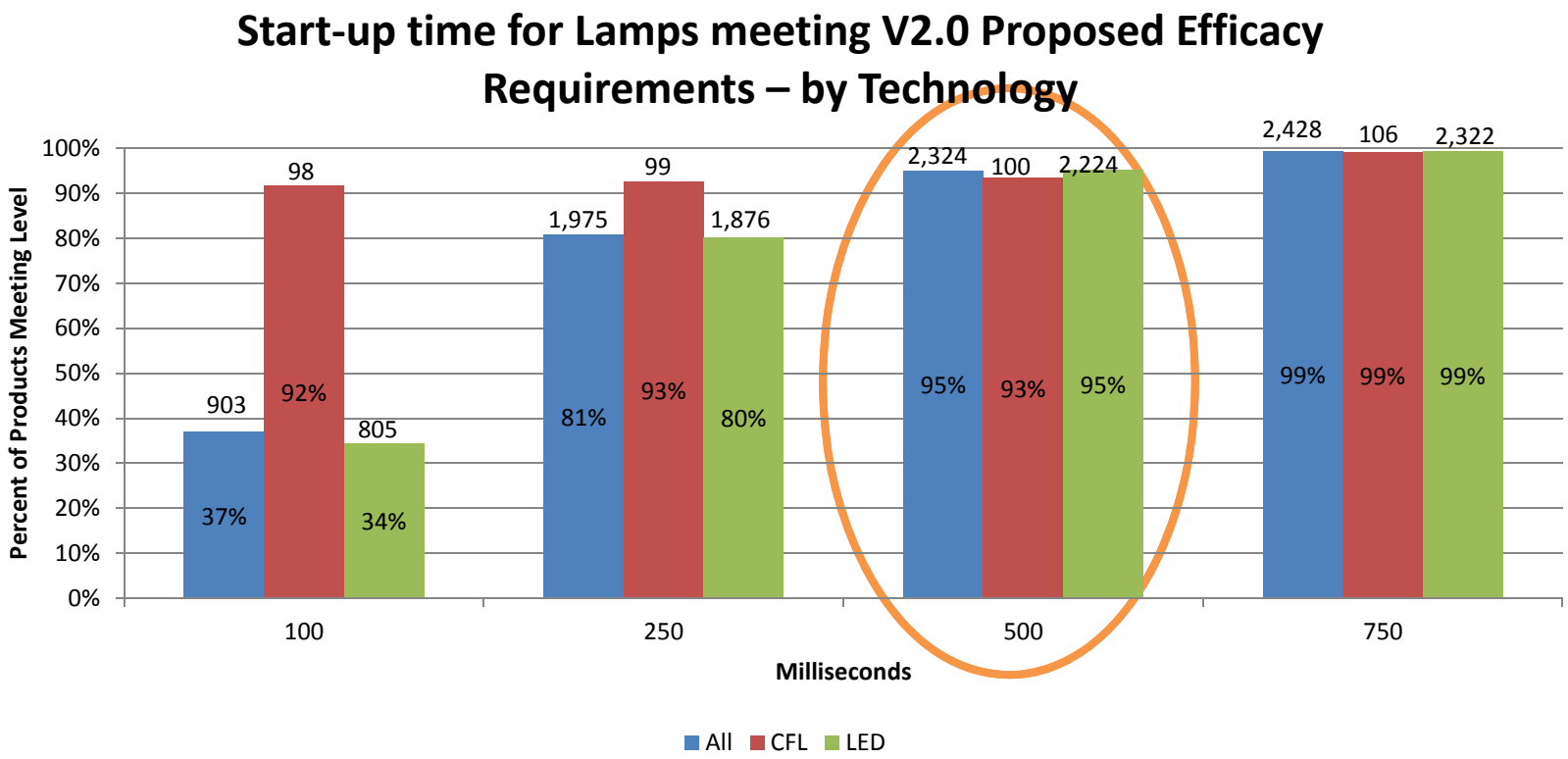
Section 11.4: Start Time



- V1.1: Start time must be ≥1000 milliseconds of application of electrical power
- Proposed V2.0: Start time must be ≥500 milliseconds of application of electrical power

Section 11.4: Start Time



- V1.1: Start time must be ≥1000 milliseconds of application of electrical power
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  - 95% of lamps that meet the proposed efficacy levels have a start time of 500 milliseconds or less.

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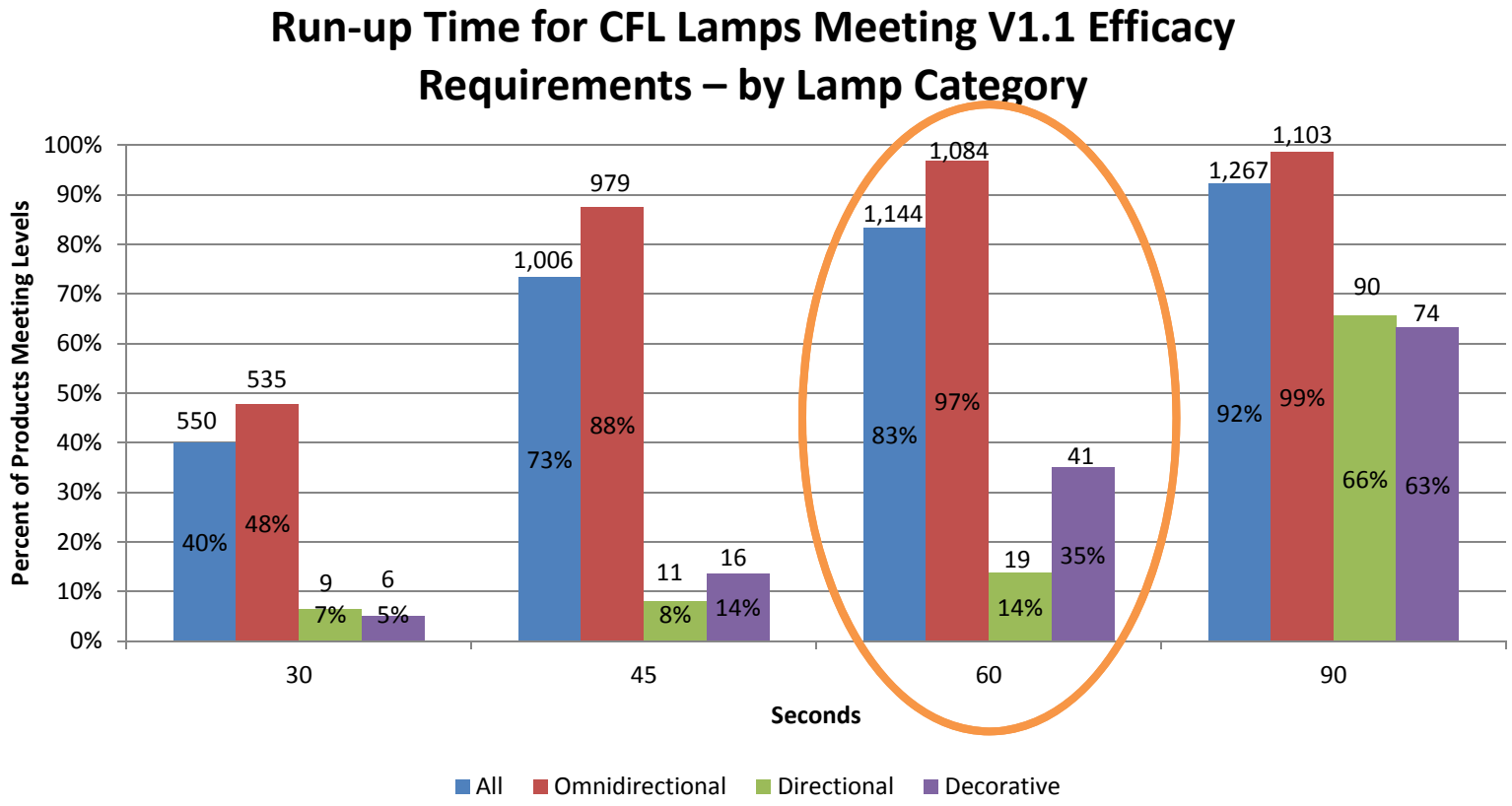
Section 11.5: CFL Run-Up Time



- V1.1: Covered CFLs must achieve 80% stabilized light output in ≤120 seconds and all other CFLs must achieve 80% stabilized light output in ≤60 seconds
- Proposed V2.0: Lamp must achieve 80% stabilized light output in ≤60 seconds

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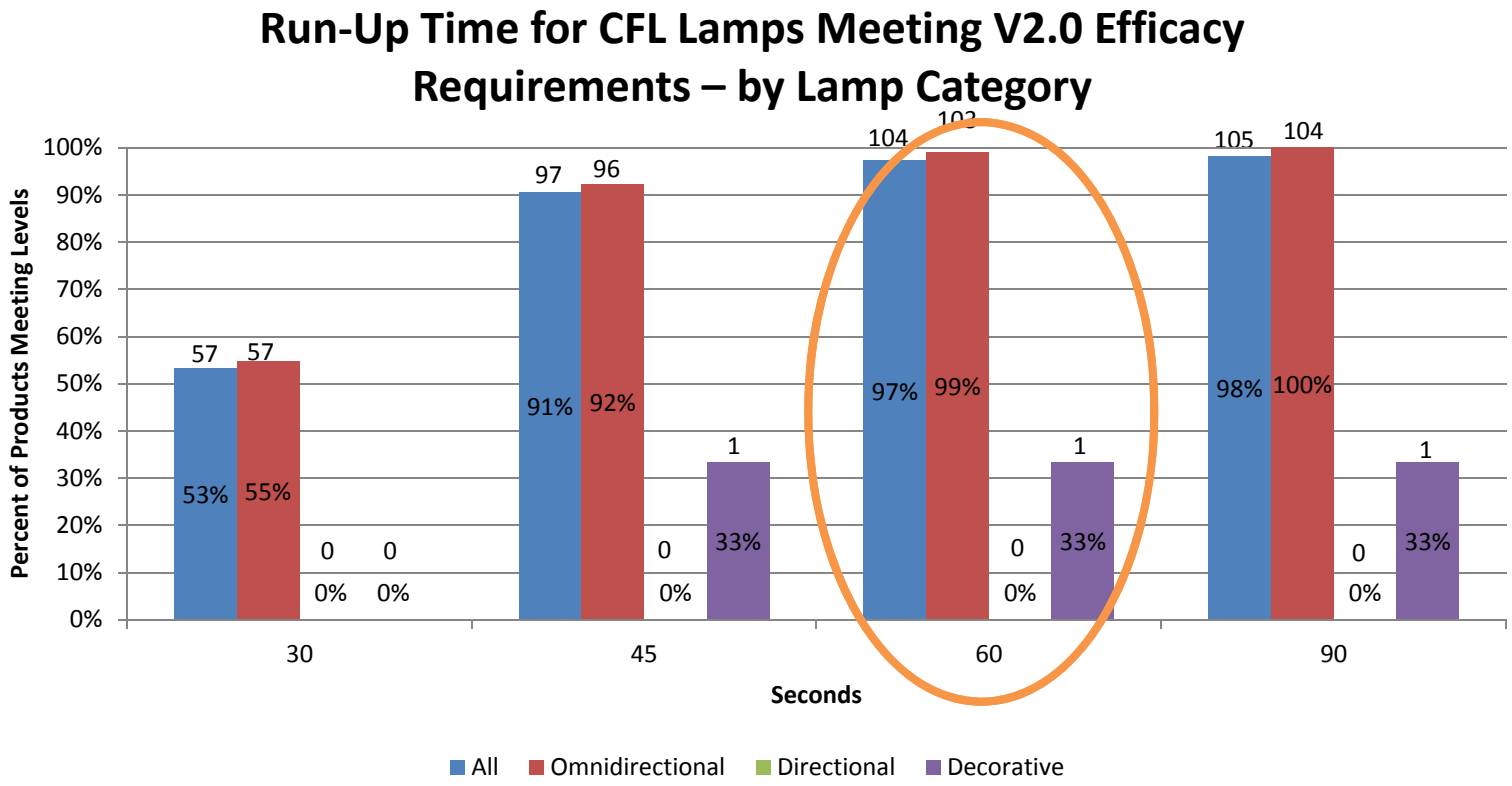
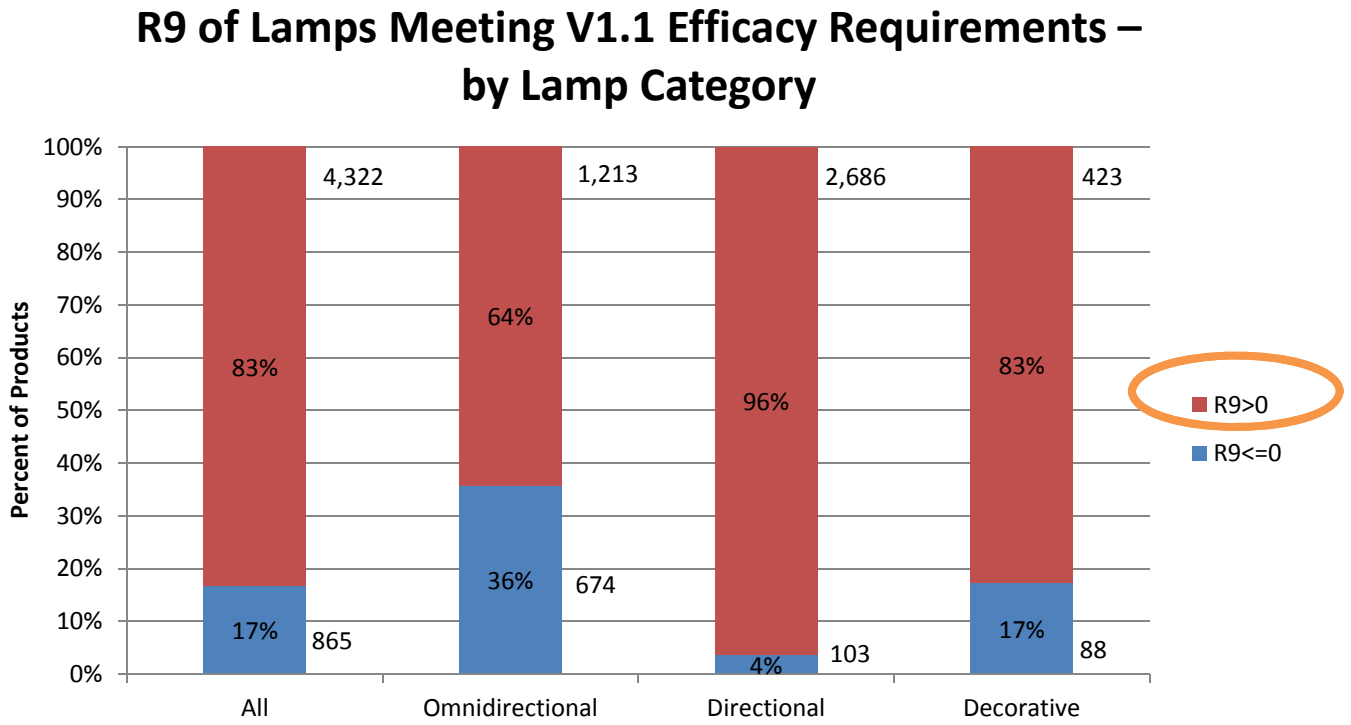
Section 11.5: CFL Run-Up Time



- V1.1: Covered CFLs must achieve 80% stabilized light output in ≤120 seconds and all other CFLs must achieve 80% stabilized light output in ≤60 seconds
- Proposed V2.0: Lamp must achieve 80% stabilized light output in ≤60 seconds.
  - 97% of lamps that meet the proposed efficacy levels have a run-up time of 60 seconds or less.

Section 9.7: Color Rendering: All Lamps



- V1.1: No R_9 requirement for CFLs
- Proposed V2.0 requirement of R_9>0

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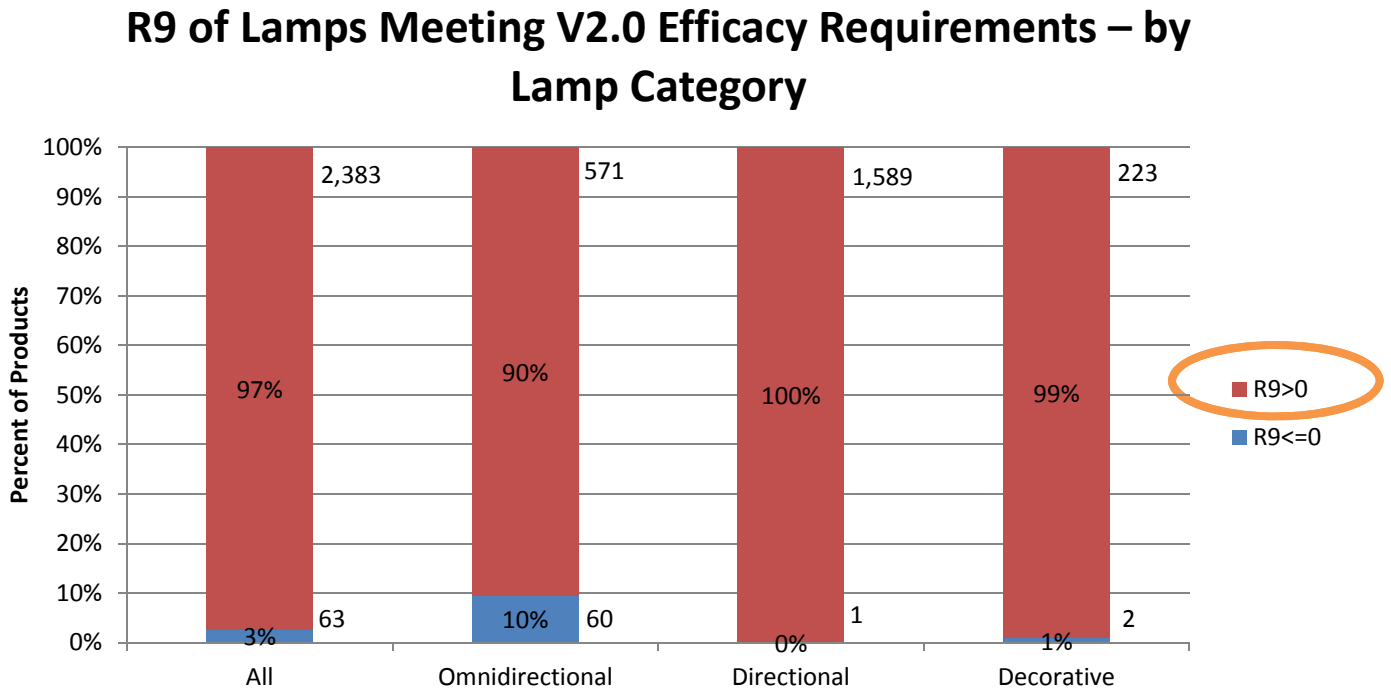
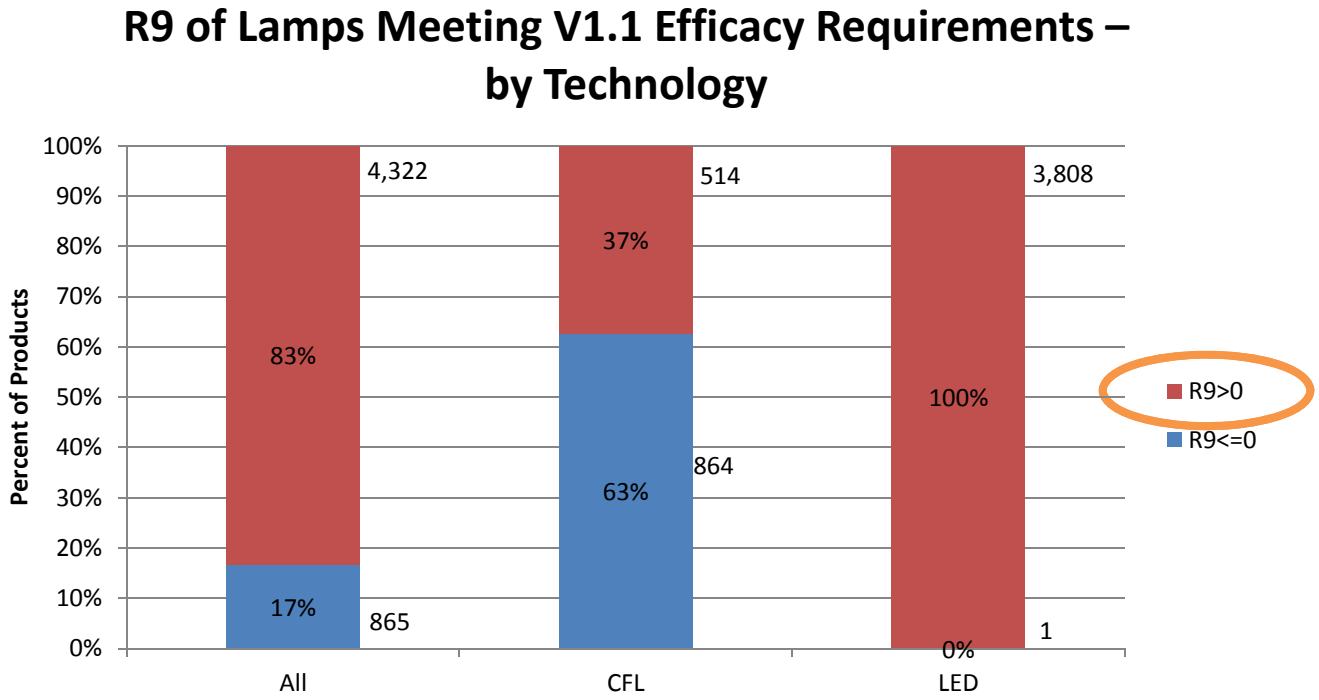
Section 9.7: Color Rendering: All Lamps



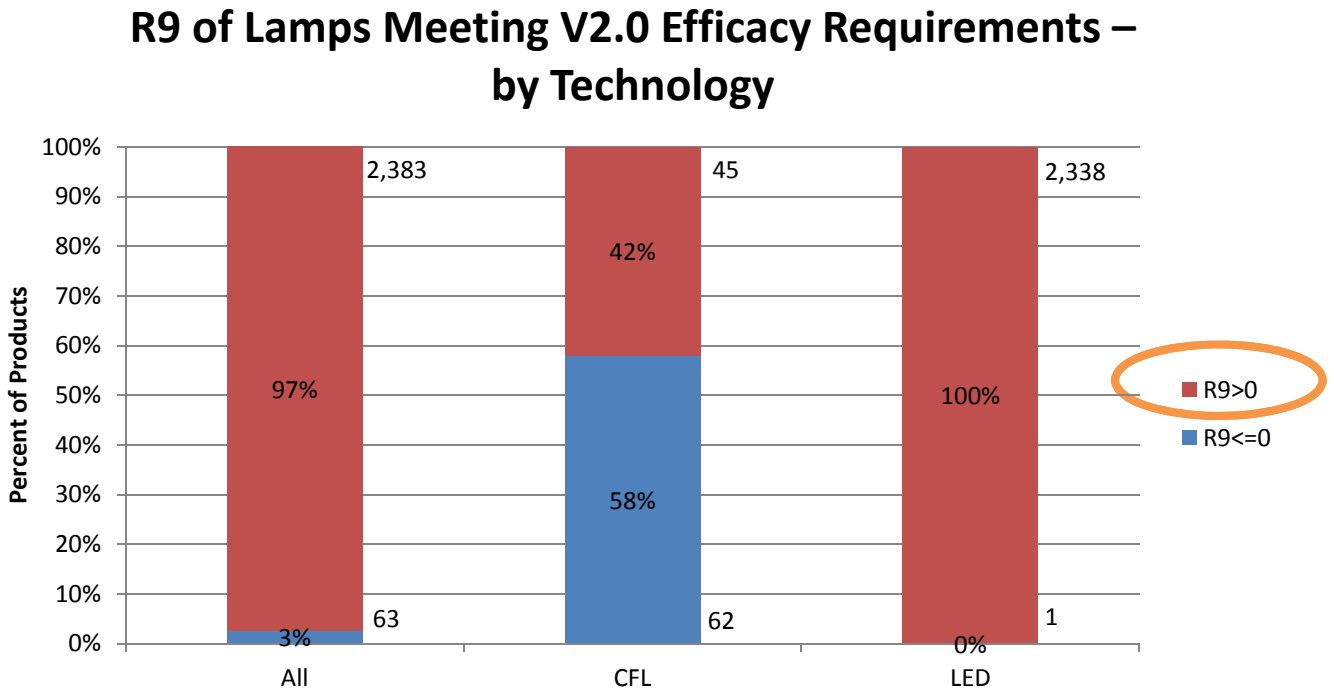
- V1.1: No R_9 requirement for CFLs
- Proposed V2.0 requirement of R_9>0
  - 97% of lamps that meet the proposed efficacy requirements have R_9>0

Section 9.7: Color Rendering: All Lamps



- V1.1: No R_9 requirement for CFLs
- Proposed V2.0 requirement of R_9>0

Section 9.7: Color Rendering: All Lamps



- Proposed V2.0 requirement of R_9>0
- Currently, 82% of lamps on the ENERGY STAR Certified Lamps Product List have an R_9 >0
  - 97% of lamps that meet the proposed efficacy requirements have R_9>0