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| ID | Functional Safety Requirement | Allocation to Element | ASIL |
| FSR1 | The brake lamps shall be activated within 50ms of receiving a brake signal. \* [1, p. 5.2.22.1] | Logic Unit, Brake Pedal, Turn Signal\* | D |
| FSR2 | The brake lamps shall be activated if the acceleration of the vehicle is measured to be > 1.3 m/s2 while the vehicle is in regenerative braking (one pedal) mode and shall remain activated until the acceleration is measured to be <= 1.2 m/s2. \* [1, p. 5.2.22.2] | Logic Unit, Driving Mode Signal, Turn Signal\* | D |
| FSR3 | The brake lamps shall not be activated if a turn signal is active. \*\* [2, p. 93] | Logic Unit, Turn Signal\*\* | D |
| FSR4 | Faults in the logic unit, which would lead to an unintended activation of brake lamps, shall be detected within 50ms. | Logic Unit | D |
| FSR5 | Faults in the logic unit, which would lead to a failure to illuminate when signaling\* or braking, shall be detected within 50ms. | Logic Unit, Brake Pedal, Turn Signal\* | D |

\* In the case that the system is configured for unified brake and rear turn signals, the brake lamps shall only be activated if the turn signal is not active.

\*\* In the case that the system is not configured for unified brake and rear turn signals, this requirement shall not be considered.

# Works Cited

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| [1] | Official Journal of the European Union, "UN Regulation No 13-H – Uniform provisions concerning the approval of passenger cars with regard to braking," 24 February 2023. [Online]. Available: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:42023X0401. [Accessed 15 October 2024]. |
| [2] | Transport Canada, "Technical Standards Document No. 108, Revision 7," 4 February 2021. [Online]. Available: https://tc.canada.ca/sites/default/files/2021-02/108\_tsd\_rev\_r7.pdf. [Accessed 15 October 2024]. |