**Autonomous Emergency Braking**

**Test Strategy**

**Document History**

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| --- | --- | --- | --- |
| Revision No. | Date | Author | Changes |
| 1 | 09.05.23 | B. Shivani | Test strategy updates on unit testing |
| 2 | 11.05.23 | K. Harinivash | Updated governance table |
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|  |  |  |  |

**Review and Approval**

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| Role | Name | Date | Signature |
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**Distribution**

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| Name | Number | Media | Action |
| Harinivash | 1 | Drive upload | Review and approval |
| Shivani | 1 | Drive upload | Editor |
| Ashraf | 1 | Soft copy | Reference |
| Giriprasath | 1 | Soft copy | Reference |
| Sivaranjani | 1 | Soft copy | Reference |

**Governance**

|  |  |  |  |
| --- | --- | --- | --- |
| Role | Contact | Responsibility | Location |
| Team member | Shivani | Completing test documents and writing test cases, UT plan preparation | India |
| Team member | Ashraf | Creating a matlab model for AEB system | India |
| Team member | Giriprasath | Creating a matlab model for AEB system | India |
| Team member | Sivaranjani | Provide help to Team members for model and test documents | India |
| SPOC | Harinivash | Preparation of test documents , Review of the documents , Sharing the documents to Trainer | India |

1. **Introduction**

**1.1 Purpose**

The document describes the strategical plan of Autonomous emergency braking to perform unit testing, integration testing and system requirement testing before releasing the product to the client.

**1.2 Scope**

To define and analyse the testing activities for each parameter in secondary input blocks and carried out by each phases with respective to the timeline defined in test plan.

**1.3 Terms and Acronyms**

The acronyms expanded in Table 1-1 are fundamental to the information in this document

Table 1.1 :Acronyms Used in the Document

|  |  |
| --- | --- |
| ACRONYM | EXPLANATION |
| UT | Unit Testing |
| DT | Diagnostic Testing |
| TTC | Time to Collision |

1. **Test Requirement**

The objective and tools required are specified for each type of testing listed in the following sections.

**2.1 Unit Testing**

To isolate the selected modules/features and test it to verify, identify errors/bugs. Verification of each parameter with varying values with respective to the condition and phases.

* + 1. **Objectives**
* The unit test cases should be based on the definition of the unit.
* To test functionally to each parameters of the secondary inputs
* To test the reliability of the product by testing each modules for
* Checks every condition in each phase of the system
* Checks for boundary conditions where necessary
* Robustness in handling incorrect inputs

**2.1.2 Tools used**

* Personal Computer(16 GB RAM , ITB HDD)
* MATLAB
* State flow package

**2.1.3** **Test setup**

* **Step 1:** Setup the test environment with required blocks and methods to execute the test cases
* **Step 2:** Take up the range of each parameters of input and predict the results for each illustration values within the range
* **Step 3:** Test the system with varying values of the block which results to the corresponding phase
* **Step 4:** Check whether any changes or bugs occurs when varying values in subsystem

Example:

The functional topology for performing the unit testing is shown as in Figure 2.1

TEST CASES



OUTPUT INDICATION / WARNING AND BRAKING



INPUT DATA

UNIT UNDER TESTING

Fig 2.1 Functional topology of unit testing