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| **Review Reference No.:** |  | **Review Date:** |  |
| **Review Reference Documents:** |  | | |

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| **Sl. No.** | **Checklist Item** | **Yes/No/NA** | **Actions To Be Taken/Remarks** |
| **Portability** | | | |
| 1. | Is Design Portability required? To which Platform? |  |  |
| 2. | Is Code Portability required? To which platform? |  |  |
| **Component Reuse** | | | |
| 3. | Is reuse of any/some software components envisaged? Which? Where? |  |  |
| **Environment** | | | |
| 4. | What is the present development environment? |  |  |
| 5. | What is the memory available? What is the estimated size of the product? |  |  |
| 6. | What is the clock speed? |  |  |
| 7. | What extra add-on hardware is needed? |  |  |
| 8. | What is the OS Compiler? |  |  |
| 9. | What is the debugger? |  |  |
| 10. | What are the tools to be used? |  |  |
| 11. | Are all tools available under the specified environment? |  |  |
| 12. | What is the Target environment? |  |  |
| 13. | What is the support software required? Are they currently available? |  |  |
| 14. | Is the support software compatible? |  |  |
| 15. | Are any external libraries used? Are they documented? |  |  |
| 16. | Do sample programs exist? |  |  |
| 17. | Is there adequate support for bought-out software? |  |  |
| 18. | Is any of the HW /SW customer supplied? |  |  |
| 19. | Will they be available on time? |  |  |
| 20. | What is the alternative if there is a delay? |  |  |
| 21. | Is the frequency of backup and disaster recovery adequate? |  |  |
| 21. | Is any of the technology in this product (OS, development environment etc.) still evolving? |  |  |
| 22. | What are the maturity levels of the technology/methods used? |  |  |
| 23. | Are the Target and Development environments different? What is the impact of this on the design and testability? |  |  |
| **Design Tools** | | | |
| 24. | Are these tools available? Are they compatible and adequate? |  |  |
| 25. | What are the time/space overheads associated with the tools? |  |  |
| **Design Methodologies** | | | |
| 26. | Have any of the design/analysis methodologies been used?  OOA/OOD Structured Analysis Other techniques / methods Tool based |  |  |
| **Maintainability** | | | |
| 27. | What is the intended life span for this product? |  |  |
| 28. | What kind of maintenance is envisaged? |  |  |
| 29. | What enhancements are envisaged? |  |  |
| 30. | What tools are required for maintenance support? |  |  |
| 31. | What additional resources need to be mobilized? |  |  |
| **Testability** | | | |
| 32. | Are all requirements defined testable? |  |  |
| 33. | Are any special test methods/tools required? |  |  |
| 34. | Can this product/component be tested independently or is there a dependency? Are the dependency defined? |  |  |
| **Error Message/Diagnostics** | | | |
| 35. | What types of error trapping/diagnostics are envisaged? |  |  |
| 36. | Is it logging, Display or both? |  |  |
| 37. | What is the level of diagnostics required? Flat or Hierarchical? |  |  |
| 38. | Is time tagging required? |  |  |
| 39. | What is the time resolution required? |  |  |
| 40. | How long is the error log data/diagnostic data to be maintained? When is it to be cleared? |  |  |
| 41. | What is the format of logging? |  |  |
| 42. | Is there any size restriction? |  |  |
| **Standards and Guidelines (For Design, Specification, Coding, Testing)** | | | |
| 43. | What are the standards to be followed? Are they documented? Is it adequate? |  |  |
| 44. | Are these acceptable to the customer? |  |  |
| **Change of Requirements** | | | |
| 45. | Have components/parts of the system been identified which may be subject to change in future? |  |  |
| 46. | Has sufficient flexibility been included in the system architecture to incorporate such changes? |  |  |
| **User Interface** | | | |
| 47. | Is a prototype required? What prototyping tool is needed? |  |  |
| 48. | Can the user customize the interface? Is this feature required? |  |  |
| 49. | Is the interface consistent with similar products? |  |  |
| 50. | What standards are being followed? |  |  |
| 51. | Can it be used by novices and experts? |  |  |
| 52. | Is the wording/terminology simple and consistent? |  |  |
| 53. | Is the grouping of similar logical functions proper? |  |  |
| 54. | Is navigation within the screen and between screens good? |  |  |
| 55. | Are "unavailable" items blanked out? |  |  |
| 56. | Are there any objects on the screen that the user will not normally use? |  |  |
| 57. | Are defaults properly considered? |  |  |
| 58. | Are the screens crowded? |  |  |
| 59. | Are there too many pop-up boxes or too many dialogs on the screen at any time? |  |  |
| 60. | Is the sizing of individual items on the screen appropriate and easy to use? |  |  |
| 61. | Is the alignment of all items on the screen visually correct? |  |  |
| **Algorithms** | | | |
| 62. | What special algorithms are required (Sort/Search etc.)? Are they defined? |  |  |
| 63. | How critical are they to overall product performance? |  |  |
| 64. | What is the alternate option if the algorithm does not suit the specific application? |  |  |
| **State Machines** | | | |
| 65. | Are all states completely defined? Is the existence of each state justified? |  |  |
| 66. | Are all transitions unambiguously defined? |  |  |
| 67. | Any conflict of states or events? |  |  |
| 68. | Is the State m/c diagram supplied? |  |  |
| 69. | Are there any lock-in conditions? |  |  |
| 70. | Can this be simplified by combining/reducing states? |  |  |
| 71. | What is the system default state? |  |  |
| **Device Drivers** | | | |
| 72. | Is it installable? Dynamically loadable? |  |  |
| 73. | Is it generic? |  |  |
| 74. | Is it for standard HW or custom-built HW? Is it documented? |  |  |
| 75. | Is a debugger available? |  |  |
| 76. | Are development kits/tools available? |  |  |
| 77. | Is it intended for use again? |  |  |
| 78. | Are protocols and data formats defined? |  |  |
| 79. | Are low-level issues (interrupt slots, blocking, priorities) considered/defined? |  |  |
| **Installation** | | | |
| 80. | Use standard installation Tool. Is one available? |  |  |
| 81. | Make your own installation utility |  |  |
| 82. | How complex? (Custom/Standard) |  |  |
| 83. | Install from which media? FD or CD-ROM or Download? |  |  |
| 84. | Is it necessary to prepare an installation guide? |  |  |
| **Copyright Protection** | | | |
| 85. | Is it required? |  |  |
| 86. | To what level? |  |  |
| 87. | Which method to be used? |  |  |
| 88. | Will it be part of installer or independent? |  |  |
| 89. | Can this be a bought out item? |  |  |
| **Test Tools** | | | |
| 90. | Is it generic or specific? What is the level of automation? |  |  |
| 91. | Is test case generation to be supported? Use standard text editor or Create a wizard? |  |  |
| 92. | What is the proficiency level of the user? |  |  |
| 93. | What is the kind of User Interface needed? (Details) |  |  |
| 94. | Is validation (Expected Vs Actual) to be automated? |  |  |
| 95. | Is test case grouping required? |  |  |
| 96. | Result logging to what detail? (Specification...) |  |  |
| **Internationalization** | | | |
| 97. | Is it required? |  |  |
| 98. | Who is responsible? |  |  |
| 99. | Is the extent to which internationalization will be supported defined and agreed? |  |  |
| 100. | Is there any limitation on internationalization imposed by any of the tools or other support software used? Are they examined? |  |  |
| **Resource** | | | |
| 101. | Does the job involve intensive mathematical knowledge? Are adequate resources available? |  |  |
| **Real time systems** | | | |
| 102. | Are the following attributes considered and documented?   1. Interrupt handlers and their priorities/ Dynamic change of priorities 2. Response time 3. Synchronization of tasks 4. Deadlocks 5. Race conditions 6. Memory allocation and protection 7. Overflow/Underrun considerations 8. Semaphore/Mailbox and similar intertask communications 9. Debugging support at run time 10. Message queue implementations |  |  |
| 103. | What is the context switch time of the kernel? How does it affect performance? |  |  |
| 104. | Are task timeouts considered? |  |  |
| 105. | Are there too many tasks in the system? |  |  |
| 106. | Are the system tasks and application tasks defined and prioritized? |  |  |
| **Embedded systems** | | | |
| 107. | What are the kernel/OS limitations? Are they captured? |  |  |
| 108. | What is the available memory? Expandable memory? |  |  |
| 109. | Is it RAM based or ROM based? |  |  |
| 110. | What is the maximum allowed memory for these products? |  |  |
| 111. | What is the boot/power up mechanism? |  |  |
| 112. | Does it have start-up on-board diagnostics? What diagnostics are required? Which are optional? Which are mandatory? |  |  |
| 113. | What are the debugging/test/diagnostic tools available for this configuration? Are they fully proven? |  |  |
| 114. | Does this have a minimum/optimal/maximal configuration? (Is it scaleable?) |  |  |
| **Usage** | | | |
| 115. | How will this be used? |  |  |
| 116. | Who will use this? Novice or expert? |  |  |
| 117. | How frequently? How many users? |  |  |
| 118. | How critical is this to the user? |  |  |
| 119. | How often will this be upgraded? When will it be phased out? |  |  |
| 120. | Does the usage of this tool affect/modify critical data? |  |  |
| **Security** | | | |
|  | **Security - General** |  |  |
| 121. | Is the system Client-Server/ Intranet / Internet/ Extranet based? Or is it mix of different kinds of applications? |  |  |
| 122. | Does the system intend to use 3rd Party Software? If yes, then list them along with the purpose of usage. |  |  |
| 123. | Does the system intend to use open source software? If yes, then list them along with the purpose of usage. |  |  |
| 124. | Has the technologies/ framework to be used for developing the application been identified? If yes, then list them. (For e.g. J2EE, .NET, Struts, Spring, Hibernate etc.) |  |  |
| 125. | What are the key compliance objectives? |  |  |
| 126. | What elements of the system, if any, require some level of confidentiality? |  |  |
| 127. | What data elements, if any, require some level of integrity guarantee? |  |  |
| 128. | What elements of the system, if any, require some availability guarantee? |  |  |
| 129. | What type of access control, if any, should the system utilize? |  |  |
| 130. | What measures, if any, should the system utilize to protect against insider threats? |  |  |
| 131. | What type of intrusion-detection measures should be in place, if any? |  |  |
| 132. | How should the system record intrusions and intrusion responses, if at all? |  |  |
|  | **Security – Authentication** |  |  |
| 133. | Which of the following techniques is proposed authentication based on?   * User ID & Password /PIN * Digital Certificates * Biometric |  |  |
| 134. | Does each user login with a unique user ID? |  |  |
| 135. | Are the application users different from database users? |  |  |
| 136. | Does the system impose a restriction on the length and structure of the password to make it difficult to guess? |  |  |
| 137. | Is the system responsible for storing password? If yes, then is the password one way hashed? |  |  |
| 138. | Does the system ensure that passwords are changed frequently by setting the password expiry period? |  |  |
| 139. | How the login credentials are passed from browser/ client to server? |  |  |
| 140. | Does the system ensure to encrypt the login credentials over the network? If yes, which algorithm will be used for this purpose? |  |  |
| 141. | Does the system limit each user ID to one simultaneous logon session? |  |  |
| 142. | Does the system lock user account after a designated number of consecutive unsuccessful attempts? |  |  |
| 143. | Does the system log activities involving authentication credentials?  (This includes successful login, unsuccessful & failed attempts and reset logins) |  |  |
| 144. | Does the system prohibit authentication credentials from being captured in log files? |  |  |
|  | **Security - Authorization** |  |  |
| 145. | Does the system propose a mechanism for authorizing users? (E.g. Access Control Lists, Access Matrix, Role Based, Rule-Based, etc.) |  |  |
| 146. | Does the authorization mechanism ensure that users are only allowed to do what they permitted to do? |  |  |
| 147. | Does the system prevent direct access of database? |  |  |
|  | **Security – Data Validation** |  |  |
| 148. | Does the system define a mechanism to validate the input data before being processed by any application component? |  |  |
| 149. | If the system has interfacing with external sources, then is the emanating data validated before being processed? |  |  |
| 150. | Is it intended to have reusable components / generic libraries for implementing data validation? |  |  |
|  | **Security – Session Management** |  |  |
| 151. | Does the system define session tracking mechanism (Cookies or Embedded Session data)? |  |  |
| 152. | Does the system define maximum session lifetime? |  |  |
| 153. | Does the system maximum renewable session timeout? |  |  |
| 154. | Does the system prompt the user to login to the application again, after a session is expired? |  |  |
|  | **Security - Cryptography** |  |  |
| 155. | Does the system define encryption mechanism for sensitive data wherever required? |  |  |
| 156. | Is the encryption algorithm identified? If yes, which is that algorithm? |  |  |
| 157. | If Digital Certifications are intended to be used for authentication, then has the system identified a policy for key management? (i.e. generation/ protection/ expiration/ information recovery of Private Key) |  |  |
|  | **Security - Error / Exception Handling** |  |  |
| 158. | Does the system define error handling mechanism to recover gracefully from anticipated user errors (e.g., invalid input)? |  |  |
| 159. | Does the system plan to handle unknown error messages/conditions to avoid information leakage? |  |  |
| 160. | Does the system define error handling mechanism to recover gracefully from anticipated user errors (e.g., invalid input)? |  |  |
|  | **Security - Logging** |  |  |
| 161. | Has the system identified the requirement of logging the activities? |  |  |
| 162. | Has the system identified to log the user name, time of operation for each of the operations (Insert, Update and Delete)? |  |  |
| **Performance** | | | |
| 163. | What is the expected speed of performance? |  |  |
| 164. | What is the response time required? |  |  |
| 165. | Is Capacity planning done as per the desired performance and response time? |  |  |
| 166. | Reliability requirements? |  |  |
| 167. | Availability requirements? |  |  |
| 168. | Are low and high performance boundaries defined? |  |  |
| 169. | Is enough testing data gathered or generated to test application in near real scenario? |  |  |
| **Interfaces** | | | |
| 170. | What are the external HW/SW interfaces? Are they identified and documented? |  |  |
| 171. | Are there any undefined interfaces yet? |  |  |
| 172. | Which of these interfaces are to be implemented by this product? Which are already available? |  |  |
| 173. | Is there any interface constraints? |  |  |
| **Documentation** | | | |
| 174. | Any documents are available? |  |  |
| 175. | What documentation is required? |  |  |
| 176. | Is translation required? |  |  |
| 177. | Is data flow for each component defined? Is the representation clear? |  |  |
| 178. | Is the overall structure defined? Is it suitable for implementation? Is the structure definition clear? |  |  |
| 179. | What is the design complexity envisaged? Does any of the specification lead to complexity of design? |  |  |
| 180. | Are alternate architectures or solutions considered? Are they documented? Are they viable? |  |  |
| 181. | Is there any design constraints? Are they documented? |  |  |
| 182. | Are the system validation criteria defined? |  |  |
| 183. | Are there redundancies in the specification? |  |  |
| 184. | Are there inconsistencies or contradictions in any of the requirements? |  |  |
| 185. | Are the requirements prioritized? Are there any trade-off defined? |  |  |
| **Validation** | | | |
| 186. | Are all inputs to the system validated? How? Is it defined? |  |  |
| 187. | Does the system have outputs, which will affect external systems adversely? |  |  |
| 188. | Does the system have adequate help/prompts or other forms of context sensitive help? |  |  |
| 189. | Are abnormality processing and fault tolerance requirements defined? |  |  |
| 190. | Can each requirement be traced to the design and later stages? |  |  |
| 191. | Is there any new technology involved in any of the system components? Are the impacts of these considered? Are there any alternatives? |  |  |
| **Networking considerations** | | | |
| 192. | Is this a networked application? Is the network defined? |  |  |
| 193. | Does the performance of this depend upon the performance of the network used? |  |  |
| 194. | Are inter-operability considerations evaluated? |  |  |
| 195. | Are access/protection measures considered? |  |  |
| 196. | Are resource conflicts/deadlocks considered? |  |  |
| 197. | Does this product interface with an existing/future third-party product? Can these be addressed by the current architecture? |  |  |
| **Protocols** | | | |
| 198. | What communication protocols are used? |  |  |
| 199. | What is the byte ordering? What are the packet-size limits? Is it consistent with the media? |  |  |
| 200. | What is the handshake mechanism? Is it foolproof? |  |  |
| 201. | Is an error recovery mechanism defined? |  |  |
| 202. | What are the timing considerations? |  |  |
| 203. | What is the throughput expected? |  |  |