

**Variable Buoyancy Backboard Product Contract**

|                                  | <b>Customer need</b>                                   | <b>Product attributes/<br/>metrics</b>                    | <b>Units</b>      | <b>Engineering specs/<br/>values</b> |
|----------------------------------|--|---|-------------------|--------------------------------------|
| <b>Operation and Usability</b>   | Can be easily carried by a single lifeguard            | Mass of board on dry land                                 | kg                | less than 8                          |
|                                  | Can be easily positioned under victim during rescue    | Minimum positive buoyancy                                 | N                 | acceptable range: 22-90              |
|                                  | Inflation controls can be operated by single lifeguard | controls can be operated with one hand                    | binary            | yes                                  |
|                                  | Reaches maximum buoyancy quickly                       | Time to reach maximum buoyancy                            | seconds           | less than 5                          |
|                                  | Can support victims of varying weight                  | Maximum buoyancy  | N                 | at least 200                         |
|                                  | Can support heavy patients out of water                | Load capacity   | lbs.              | at least 400                         |
|                                  | Intuitive to use                                       | Time for experienced user to locate and activate controls | seconds           | less than 3                          |
|                                  | Easy for new lifeguard to master                       | Training time   | minutes           | less than 5                          |
| <b>Maintenance and Financial</b> | Quick to reset between usages                          | Reset time  | minutes           | less than 10                         |
|                                  | Provides indication of current product operability     | Status indicator  | binary            | yes                                  |
|                                  | Inexpensive to maintain                                | Running cost  | dollars per reset | less than 10                         |
|                                  | Affordable to purchase                                 | Initial system cost                                       | dollars           | less than 1000                       |
|                                  | Product lifespan is comparable to other backboards     | Product life  | years             | at least 5                           |
| <b>Medical</b>                   | Allows for X-ray of patient while on board             | X-ray translucent   | binary            | yes                                  |
|                                  | Sanitary   | Can be decontaminated                                     | binary            | yes                                  |