

2.009 Purple Team Product Contract

Product Description: MP4ever – *It runs forever ... as long as you do.*

Intended Customers: Music-loving joggers

Market: Jogging accessories

| MP4ever Product Contract Data Sheet | | |
|---|--|---|
| Customer Needs | Product Attributes | Engineering Specifications |
| For use by jogger, never has to replace battery. | 60 minute jog: walk 25% of jog, mp3 player will keep playing | Minimum player current: 0.11A |
| | | Maximum current spike: 0.26A |
| | | 88% joggers use mp3 player <10min when not jogging - 59% use less than 5min |
| Overall aesthetics must compete with market leaders | Simple, clean exterior | Appealing total shape and look |
| | | Material feel must be fit appeal to high percentage of market |
| | | High quality fit and finish |
| User-friendly interface | Simple button interface, easy to identify buttons without looking | Three large primary buttons |
| | | Play/Pause button in middle |
| | | Scrolling buttons at either end of play/pause. |
| Must not interfere with jogging rhythm | Minimize magnet impact with tube ends, damp motion of moving parts | 5200 Gauss primary power magnet |
| | | 2.9 pull lbs magnet used at either end |
| | | 2.1N force observed on magnet "down" cycle |
| | | 22.3N maximum force observed by jogger |
| Cost must be competitive with current mp3 players | Low-cost circuitry, minimal high-cost parts/machining | circuit parts under \$25 total |
| | | mass production model injection molded |
| | | prototype machined from delrin and ABS |
| | | low cost 512MB mp3 player used as base |
| Casing must be easy to handle/wear | Ergonomically designed casing, user-friendly shape, lightweight | 0.4 lbs (0.181 kg) weight |
| | | main body 3" diameter Disk |
| | | magnet tube 1inch diameter 5 inch length |
| | | total thickness 1.125 inches |
| Circuitry must withstand rigors of jogging | Isolation of circuitry from casing | 22.3N maximum system force |
| | | 4.6 inch magnet travel distance |
| Retains charge while being stored for months. | High-capacity capacitor, small rechargeable battery | Battery with minimum 4 year shelf life |
| | | No idle mode current flow battery to capacitor, capacitor to battery |
| Memory retention must not fail | Isolation of magnet from mp3 memory | 0.001 inch thick CU foil used to insulate |
| | | min. dist. 0.25" magnet to circuit board |