

SMARTHARD HAT- PRODUCT SPECIFICATION

ID	TITLE	TECHNICAL REQUIREMENT		TEST METHOD	SOURCE/RATIONALE	PRIORITY
		Target	Minimum			
1. Functional / Performance	a. Enhanced Communication	Robust two-way communication system with a range of up to 500 meters.	Reliable communication within a minimum range of 300 meters.	Perform field testing in various construction environments.	Based on the standard communication needs in construction sites and user feedback. To ensure effective communication on construction sites.	High
	b. Advanced Environmental Sensing	High-precision sensors for temperature, humidity, and air quality with an error margin of ±2%.	Reliable environmental sensing with an error margin of ±5%.	Perform calibration tests in controlled environments and field tests for real-world validation.	Essential for monitoring hazardous environmental conditions on construction sites.	High
2. Packaging	Robust and Lightweight Packaging	Packaging using carbon fiber or graphite materials, ensuring maximum durability and light weight.	Compliance with industry standards for construction gear packaging, ensuring safety during transportation and storage.	Impact resistance and weight measurement tests.	To align with the product's high-quality and durable design.	High
3. User Interface	Intuitive User Interface Design	User-friendly interface with customizable settings, compatible with major OS.	Basic interface with essential features, compatible with major OS.	User experience trials and feedback collection.	To ensure ease of use and adaptability for users.	High
4. Product Interface	Durable and Lightweight Helmet Material	Use of HDPE or Polycarbonate Resin for the outer shell, offering strong, lightweight, and non-conducting properties.	Use of Fiberglass or ABS plastic, providing good impact protection.	Material testing for strength, durability, and weight.	To ensure the helmet is both protective and comfortable for extended use.	High

Each specification is carefully designed to ensure that the Smart Hard Hat not only meets but exceeds the necessary functional and performance standards for its intended use in construction environments. The materials specified for construction headgear are selected for their strength, durability, and lightweight properties, aligning with the overall goal of enhanced safety and usability.