



CENTER OF OUR STRENGTH

Program Executive Office Soldier

Advanced Combat Helmet

Advanced Planning Brief to Industry

19 May 2010

Product Manager
Soldier Protective Equipment



Briefing Topics



- Ballistic Helmet and Accessories
- Head Protection Product Improvements
- Enhanced Combat Helmet (ECH) Update
- Helmet Sensor Program Overview
- Path Forward
- Technology Needs



Ballistic Helmet and Accessories



System Description:

- ACH/ECH: A modular helmet with suspension and neck protection pads provides improved fragmentation, ballistic, and impact protection while reducing weight, improving fit, and increasing comfort.
- NAPE Pad: Provides fragmentation protection to the nape area of the neck, and improves overall stability of ACH.
- Pad Suspension System: Modular, lightweight, flame retard, and moisture resistant series of pads that act as the suspension system between the wearer's head and the helmet.
- Helmet Sensor: Small, light weight, low power sensor assembly which mounts on the inside crown of the ACH and CVC to detect, measure and record impact and blast overpressure associated with concussive events.

Objective:

- To improve the Soldier's survivability

BOI:

- ACH: Based on guidance from VCSA will replace PASGT helmet as a one-for-one replacement system. AAO Completed.
- GEN I Helmet Sensor: Per VCSA guidance, one sensor per Soldier ACH (2 BCT's) FY07
- GEN II Helmet Sensor: Per VCSA guidance, one sensor per Soldier ACH (6 BCT's) FY09

Capabilities:

- ACH: 9mm protection and increased fragmentation protection; Low velocity impact protection; Improves field of view, stability, hearing and interface with other individual equipment items
- NAPE Pad: Added 9mm protection at the nape of the neck
- Pad Suspension System: Blunt impact force protection level of 150g max at 10 fps
- Helmet Sensor: Measures helmet acceleration and pressure associated with concussive events
- ECH: Improved fragmentation and ballistic protection against "selected small arms" threat

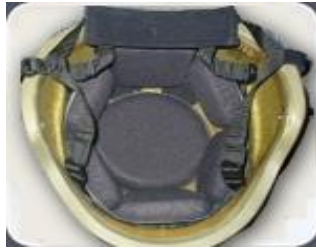


Head Protection Improvements

ACH Fielding
(initial)



Helmet weight
Decrease from
3.5 lb to 3.0 lb
(approx.)



Pad improvement
impact level increase
to 150g max at 10 fps

Nov
2002

Dec
2006

Mar
2007

Nape Pad™
Introduced



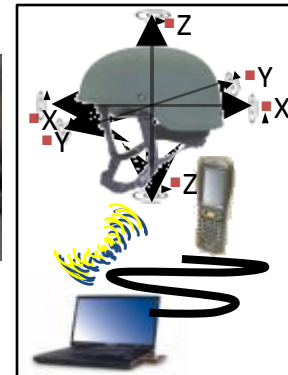
Sep
2007

Helmet Sensor
GEN I Introduced



May 2010

Helmet Sensor
GEN II Award



May 2010

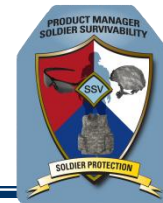
ECH w/ increased
protection against
"selected small arms
threats"



The Army Continually Improves Soldier Protection



Enhanced Combat Helmet (ECH)



- Collaborative Effort with USMC
- ECH Phase I FY09-10
 - Contract Award 4QFY09
 - Developmental Test Phase 1
 - Vendors did not meet all requirements 1QFY10
 - USMC, PM-Infantry Combat Equipment revised the ECH master schedule. USMC Milestone Decision Authority approved the re-base-lined ECH master schedule on 22 JAN 10
 - Corrective Action Reports and redesign efforts 2QFY10
- Path Forward
 - Army requirement for 200K ECH (MAR 09)
 - Developmental Retesting 3QFY10-2QFY11
 - First Units Equipped 3QFY12



Helmet Sensor Program Overview

Description:

- The Generation II Helmet Sensor (GEN II HS)
 - Small, lightweight, low power sensor assembly
 - Mounts to the inside of the ACH or the Combat Vehicle Crewman (CVC) Helmet
 - Measures, records and stores physical property measurements and characteristics related to the soldiers physical motion effects (helmet-human interface)
 - Responses associated with explosions, blasts and a wide a range of shock and impact behavior

Objective:

- Serve the Warfighter as a state of art Data collection system
- HS data will be analyzed in CONUS by medical community experts
- Supports the development of an injury risk criterion and link sensor data with potential injury driven events.

HS Variants:

- GEN I: OEF/OIF deployment for 2 BCTs has concluded. Current Status: Closed-out.
- GEN II: OEF/OIF deployment for 6 BCTs to begin OCT FY10. Current Status: SSA anticipated award 3QFY10.
- Next GEN HS: Advanced Research Initiative. Request for Information posted MAY 09.
- Next GEN HS: Request For Procurement to be posted FY11



GEN II Improvements



- **Unit Compliance, Leadership, Field Service Representatives Support**

Prior to Deployment Provide Gaining Command:

- Overarching and User Concept of Operations
- Technical Deployment Plan
- Material Fielding Plan
- Supportability Strategy

- **Improved Sensor Accountability**

During NET Fielding Install:

- Link HS to Soldiers Electronic Data Interchange Person Identifier for Individual traceability w/ property accountability and event tracking

- **Sensor Systems Technical Improvements and Data Collections Enhancements**

Functional Hardware Upgrades:

- Wireless Data Collections (RF monitor & download)
- Reduced Footprint (Weight & Size ~ 2 oz)
- Increased Battery Life (rechargeable 12 months)
- Measures Rotational & Linear Accelerations (6 DoF)
- Data Retrieval System Bio-Mechanical / Severity Threshold Alerting



ACH mounted w/ SHAKR



ACH mounted w/ HEADS



NORMAD Scanner
Winnow Mobile
5.0/6.0



Data Retrieval
System

Device ID	Serial Number	Events	Max Acc (g)	Max Rot (deg/s)	Status	Last Event	Last Download
SPR1702	45140	1	1.0	150	01	10/27/2009 10:40:29 PM	10/27/2009 10:30:29 PM
SPR17011	45052	1	1.0	150	01	10/27/2009 10:40:29 PM	10/27/2009 10:30:29 PM
SPR17013	45173	3	1.07	150	01	10/27/2009 10:40:29 PM	10/27/2009 10:30:29 PM
SPR17020	45087	3	4.03	378	06	10/27/2009 10:40:29 PM	10/27/2009 10:30:29 PM
SPR17012	45080	1	1.0	150	01	10/27/2009 10:40:29 PM	10/27/2009 10:30:29 PM
SPR17010	45111	1	1.11	150	01	10/27/2009 10:40:29 PM	10/27/2009 10:30:29 PM
SPR17014	45029	4	2.8	342	02	10/27/2009 10:40:29 PM	10/27/2009 10:30:29 PM
SPR17016	45103	1	1.0	150	01	10/27/2009 10:40:29 PM	10/27/2009 10:30:29 PM
SPR17018	45018	1	1.0	150	01	10/27/2009 10:40:29 PM	10/27/2009 10:30:29 PM

Wireless Alerting



Technology Needs



- Desired Capabilities & Technology Needs
 - Improved Helmet Retention System
 - New Retention System
 - Improve the stability of the ACH
 - Eliminate ear injuries
 - Improve the stability of the Ballistic Nape pad
 - Shall function with existing Suspension Pad system
 - Improved Helmet Fit
 - Provide optional pads for soldiers with un-common head shapes
 - Special helmet pad shape to fit a woman's ponytail or bun
 - Pads must integrate with the Ballistic Nape pads



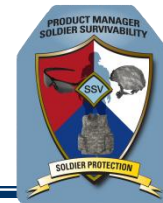
Technology Needs



- Improved Blunt Impact Performance
 - Phase I: Small Innovation Business Research (SIBR)
 - Reduce Threat and Mitigate Impact Related Head Injuries
 - Current pad meets blunt impact of $\leq 150g$'s at 10 fps
 - Increase performance from $\leq 150g$'s at 14.1 g's fps
 - Ultimate goal is \leq at 17.3 fps
 - Develop pad(s) to be current with ACH
 - Reduce concussive forces
- Facial Protection
 - Provide Facial Protection
 - Prevent maxillofacial injuries
 - Compatible with the ACH and CVC
 - Request For Information posted 27 APR 10
 - Request For Information closes 4 JUN 10
 - Product Demo at Haymarket on 22 & 23 June



Technology Needs



- Screwless Retention System
 - Retention design will attach on the inside of the ACH
 - Improves the ballistic performance consistency of the ACH
 - Eliminates the hardware from the ACH
 - Reduces the weight of ACH
 - Standardization of the ACH



QUESTIONS

