

**RATH – TEST STANDARDS COMPARISON**

DOI/USFS Aviation Helmet Standard v4.3 · U.S. Military FNS/PD 96-18 (HGU-56/P AIHS) · USSOCOM RATH Performance Specification

TEST PARAMETER	DOI / USFS Aviation Helmet Standard v4.3 · 2019	U.S. MILITARY FNS/PD 96-18 · HGU-56/P · 1996	USSOCOM RATH Performance Spec · 2023	RATH Meets or exceeds
IMPACT ATTENUATION				
Shell — peak acceleration	≤ 300 g at any shell site	≤ 150 G crown ≤ 175 G headband	≤ 150 G crown ≤ 175 G headband	✓
Shell — drop velocity	6.0 m/s flat anvil 5.2 m/s hemispherical anvil	6.00 m/s headband 4.88 m/s crown Flat anvil	6.00 m/s headband 4.88 m/s crown Flat anvil	✓
Ear cup — peak acceleration	≤ 190 g peak ≤ 175 g average	≤ 150 G	≤ 150 G	✓
Ear cup — drop velocity	6.0 m/s, flat anvil	6.0 m/s, flat anvil	6.00 m/s, flat anvil	✓
Environmental conditioning	Ambient 21 °C, cold -10 °C, hot 50 °C	Ambient and hot only Ear cup impacts ambient only	Ambient 21 °C, cold -10 °C, hot 54 °C	✓
Shell penetration resistance	Not required	5 kg impactor from 1.52 m Tear length ≤ 5 cm	5 kg impactor from 1.52 m at five sites Tear length ≤ 5 cm	✓
RETENTION SYSTEM				
Dynamic roll-off	Required — ASTM F1446 4 kg drop mass from 0.6 m, face-up and face-down	Not required	Not required	✓
Chin strap static load	136 kg held 2 minutes	1 950 N (≈ 199 kg) held 2 minutes	1 950 N (≈ 199 kg) held 2 minutes	✓
Chin strap elongation	≤ 32 mm	≤ 38 mm	≤ 38 mm	✓
ACOUSTICS AND COMMUNICATIONS				
Noise attenuation	Nine bands, 125 – 8 000 Hz 14 – 46 dB minimum	Nine bands, 125 – 8 000 Hz 14 – 44 dB minimum	Nine bands, 125 – 8 000 Hz 26.0 – 55.6 dB mean	✓
Communications performance	Talk-listen test — side tone in each earphone, no distortion	No functional test Hardware compliance only	Speech intelligibility, ANSI S3.2 ≥ 75 % threshold, 90 % objective	✓
VISOR SYSTEM				
Visor optics, impact and ballistic	Not tested — visual inspection and field of view only	MIL-V-43511 optics, impact and ballistic, hard-coated both sides	MIL-DTL-43511D optics, ANSI Z87.1 impact and MIL-PRF-32432 Class 1 ballistic, tested helmet-mounted	✓
BALLISTIC PROTECTION				
Ballistic performance	Not required	Not required	Ballistic applique qualified to the RATH-P standard	✓

RELATIVE STRINGENCY
 Most demanding (may tie)
 Intermediate
 Least demanding, or none set
 Equivalent, or not directly comparable
DROP VELOCITY DOI/USFS adds a hemispherical anvil at 5.2 m/s; both military specifications use the flat anvil throughout.**ACOUSTICS** All three evaluate the same nine one-third-octave bands, 125 to 8 000 Hz. DOI/USFS and FNS/PD state a minimum per band; RATH-P states a required mean, which is higher than the DOI/USFS minimum at every band.