

Table 3.1. Top-Level Operational Test Evaluation Framework Matrix

Top-Level Operational Test Evaluation Framework (Assume 100% Test Efficiencies)					
Goal of the Test		Mission-oriented Response Variable	Test Design	Resources	Test Period
Operation/Capability	COIs	Effectiveness / Survivability/Suitability ¹	STAT Methodology and Operational Context	People, Places, Things	e.g., LUT, OA, IOT&E
Close Friendly Engagement	COI 1. Close Air Support	Time to employ weapons (KSA1) Aircrew rating workload (KSA2) Ground force rating of coordination	Flight test - DRY STRIKE test design (Table D.1) -- 77 test points (69 pts D-optimal of 2 ⁶ *3 + 8 demos)	19 dedicated sorties x 4 hrs	IOT&E
ID/Monitor Enemy Forces	COI 1, COI 2. air interdiction COI 3. collateral CSAR/NTISR	Range to identify target (KPP1)	Flight test - TARGET ID/MONITOR (Table D.2) -- 47 test points nested in DRY STRIKE sorties (39 pts D-optimal of 3 ² *2 ² *4 + 8 demos)	Nested in sorties above	IOT&E
ID/Monitor Friendly Forces	1, 2, 3	Range to identify target (KPP1)	Flight test - FRIENDLY ID/MONITOR (Table D.3) -- 47 test points nested in DRY STRIKE sorties (39 pts D-optimal of 3 ² *2 ² *4 + 8 demos)	Nested in sorties above	IOT&E
Direct Fire	1, 2	Miss distance/CEP Ability to correct fire (KPP2) Time to employ (KPP3) Time to reload	Flight test - 30MM LIVE SHOT (Table D.4) -- 16 test points (2 ³ factorial x 2)	7 sorties nested in above 2 sorties nested in below for simultaneous demos 800 x 30mm	IOT&E
PGM Employment	1, 2	Miss distance Time to employ Time to impact Stand-off range (KPP4) Dual target engagement (KPP2)	Flight test - GRIFFIN LIVE SHOT (Table D.5) -- 22 test points (20 optimal split-plot 2 ⁴ *3 + 2 demo) Flight test - SDB LIVE SHOT (Table D.6) -- 18 test points (2 ³ factorial x 2 demo)	18 dedicated sorties on live fire range 18 x SDB 22 x Griffin	OA1 (50%, DT sorties) IOT&E (50%)
Net-centric Ops Supportable	1, 2, 3	Ability to support net-centric ops (KPP5) Aircrew rating of situational awareness Availability of ISR data	Surveys from all IOT&E sorties Flight test - VORTEX TRANSFER (Table D.7) -- 6 test points nested in sorties above	Nested in sorties above	IOT&E
Persistence	1, 2, 3	Compatibility of crew operating environment Loiter time	Surveys from all IOT&E sorties Paper analysis of stores	Existing sorties	IOT&E
Sortie Generation	COI 4. mission taskings	Time for Mx to generate aircraft Time for crew to preflight aircraft	Measured over existing IOT&E sorties -- Demo hot and cold-soak startups	McKinley Climate Lab for cold-soak startup	IOT&E
Materiel Reliability	4	Weapon system reliability (KSA10) Mission reliability	Measured over existing IOT&E sorties	Existing sorties. At least 151 flhrs required with <= 2 aborts.	IOT&E
Maintainability	4	Mean Time to Repair Mx crew rating of tech orders PSP integrated diagnostics	Measured over existing IOT&E sorties	Existing sorties	IOT&E
Materiel Availability	COI 4, COI 5. operate globally	Mission Capable Rate Aircraft Availability (KSA9) WRSK availability	Measured over existing IOT&E sorties	Existing sorties	IOT&E
Air Refuelable	5	Crew rating of refueling ops	Flight test: AERIAL REFUELING (Table D.5) -- 4 test points (2 ² factorial) during existing sorties	Existing sorties	IOT&E
Force Protection	COI 5, COI 6. perform missions and survive	Probability of casualty from specified ballistic threats (KPP7) Aircrew ability to use life support Aircrew egress time Size of security package	Ground test: Demo aircrew emergency egress x4 -- Day/night, with/without PPE	Existing sorties	IOT&E
Survivability	6	Pk of avoiding/defeating threat (KPP6) Probability of analyzing threat indications (correctly identifying) Probability of accomplishing avoidance tactics	Flight test: ELECTRONIC THREAT AWARENESS (Table D.6) Flight test: VISUAL THREAT AWARENESS (Table D.7) -- 20 test points each (2 ³ factorial x 2 + 4 demos) during existing sorties	Existing sorties. Approximately 10-14 sorties required over electronic warfare test range.	IOT&E

1. Label measures with a KPP or KSA identifier if the measure is associated with a KPP or KSA.