



Status of NAVAIR, PMA-242
30mm x 113 XM950 TP
Qualification Program
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Outline of Presentation

- Background on the of the 30mm x 113 XM950 TP Ctg
 - NAVAIR, PMA-242 Program
 - Percussion Trainer Ctg for Combat HEDP Ctg
 - Eliminate HERO and EM Issues
- Qualification by Test and Analogy
 - NSWCDD Tests – Environmental & IM
 - US Army & OLIN Tests
- Summary of Qualification
 - XM950 FHC
 - XM950 FTQ
 - XM950 FOC



Background of 30mm XM950 TP

- 30mm XM950 Target Practice (TP) Ctg was Built in the 1980s for the US Army in order to Eliminate HERO for Rotary Wing Aircraft mounted M230 Chain Guns
 - OLIN Corp (Now GD-OTS) Built and Evaluated the XM950 TP Percussion Primed Ctgs
 - Final Hazard Classification (FHC) Obtained for XM950
- NAVAIR, Code PMA-242, Requested NSWCDD to Qualify the 30mm XM950 TP in 2011 by Test and Analogy
 - Utilize 1980s OLIN and US Army Test Data for XM950 TP Ctg
 - Conduct Tests for Final Type Qualification of the XM950 Ctg
 - Use Other Previous 30mm TP Ammo Results – By Analogy

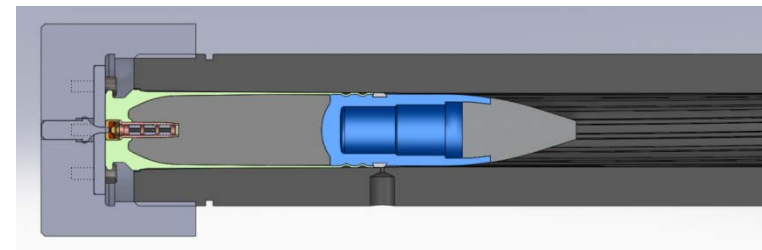
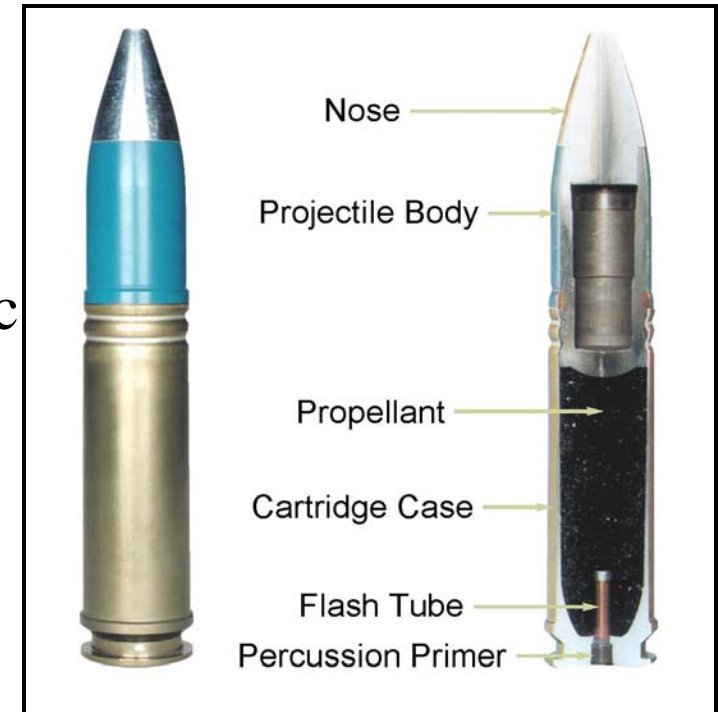
30mm XM950 TP Performance and Physical Characteristics

Cartridge Performance

- Muzzle Velocity : 795m/s - 815m/s
- Case Mouth Pressure: 335 Mpa
- Action Time: Mean + 3 Sigma < 4 msec
- Range: 4,000 meters
- Dispersion: 1.35 mils

Physical Characteristics

- Aluminum Ctg Case Length: 113mm
- Projectile Mass: 233 grams
- Propellant (WC855) Mass: 50 grams
- In-Service M36 Percussion Primer
- Overall Ctg Mass: 343 grams
- Overall Ctg Length: 199.75mm

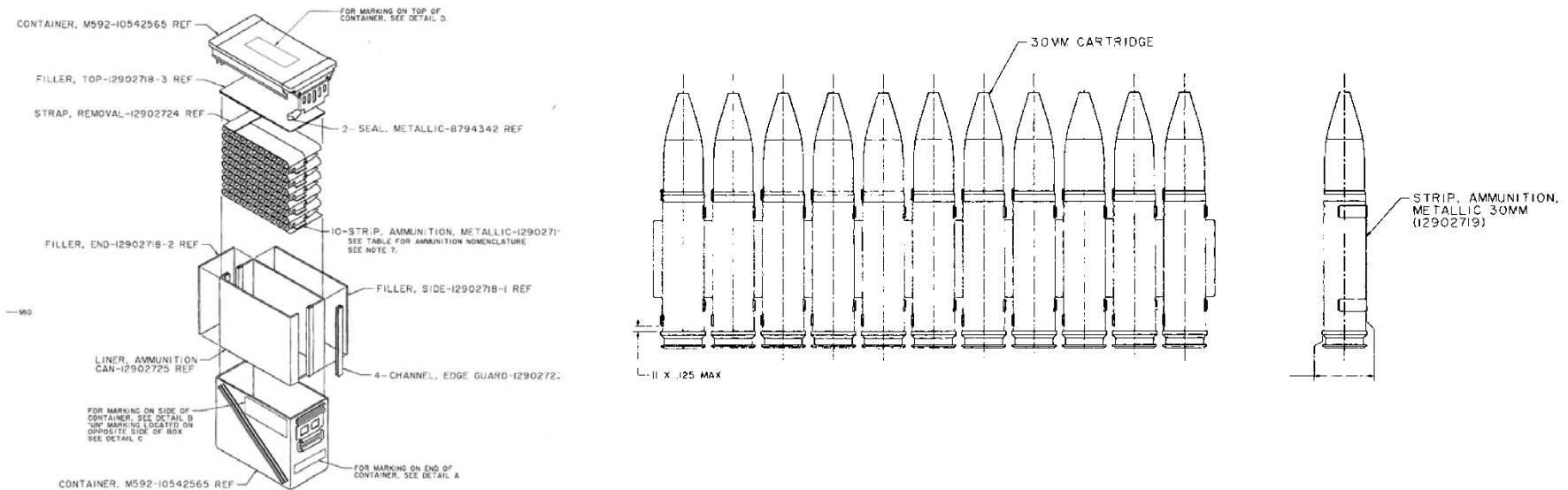


30mm M230 Percussion Gun



- **M230 Percussion Primed (PP) Chain Gun**
 - Gun Mass: 132 lbs
 - ROF: 625 shots per minute \pm 25 spm

30mm XM950 BAS Packaging



- 11 Cartridges per Bulk Ammunition Strip (BAS)
 - 10 Strips per M592
- 110 Cartridges per M592 Ammo Can
- Total Ammo Can Weight is 120 lbs



30mm XM950 TP Test Plan (1/4)

Ammo Test (AT) #	Test Description	# Rds	Test Activity and/or By Analogy	Resulting Data
AT-1	PVAT	45	NSWCDD	Case Mouth Pressure, Muzzle Velocity, & Action Time
AT-2	Sequential Environmental	306*	NSWCDD	X-Ray, Still Photos & Firing Data
AT-2A	28-Day Temp & Humidity (T&H)	288*	NSWCDD (Fire 18 Ctgs)	Case Mouth Pressure, Muzzle Velocity, & Action Time
AT-2B	Transportation Vibration (Hot, Cold, & Ambient)	228*	NSWCDD (Fire 60 Ctgs)	Case Mouth Pressure, Muzzle Velocity, & Action Time
AT-2C	4-Day T&H	216*	NSWCDD (Fire 12 Ctgs)	Case Mouth Pressure, Muzzle Velocity, & Action Time



30mm XM950 TP Test Plan (2/4)

Ammo Test (AT) #	Test Description	# Rds	Test Activity and/or By Analogy	Resulting Data
AT-2 & AT-12	40 Ft-Drop	216* (AT-2 Ctgs)	NSWCDD	Safe to Handle & Dispose
AT-3	Fast Cook-Off	288	Test & Analogy	Reaction Results (Frag Pattern & Video of Reaction)
AT-4	Slow Cook-Off	144	Test & Analogy	Reaction Results (Frag Pattern & Video of Reaction)
AT-5	Bullet Impact	144	Test & Analogy	Reaction Results (Frag Pattern & Video of Reaction)
AT-6	Fragment Impact	144	Test & Analogy	Reaction Results (Frag Pattern & Video of Reaction)
AT-7	Sympathetic Det	288	Test & Analogy	Reaction Results (Frag Pattern & Video of Reaction)
AT-8	Shaped Charge Jet	72	Test & Analogy	Reaction Results (Frag Pattern & Video of Reaction)



30mm XM950 TP Test Plan (3/4)

Ammo Test (AT) #	Test Description	# Rds	Test Activity and/or By Analogy	Resulting Data
AT-9 & AT-16	Salt Fog	36	NSWCDD	PVAT & F&C Thru M230 PP Chain Gun
AT-10 & AT-17	Sand & Dust	36	Test & Analogy	F&C Thru M230 PP Chain Gun
AT-11 & AT-16	5-Foot Drop	25	Test & Analogy	Safe to Handle & Dispose
AT-12	40-Foot Drop	216*	Test & Analogy	Safe to Handle & Dispose
AT-13	Shipboard Shock	72 (AT-2 Ctgs)	Test & Analogy	PVAT & F&C Thru M230 PP Chain Gun
AT-14	Waterproof	36	Test & Analogy	PVAT & F&C Thru M230 PP Chain Gun



30mm XM950 TP Test Plan (4/4)

Ammo Test (AT) #	Test Description	# Rds	Test Activity and/or By Analogy	Resulting Data
AT-15	Energetics Qualification	N/A	Analogy to Existing Propellant	Propellant Qualification Data Used for Final Type Qualification (FTQ)
AT-16	Function & Casualty (F&C)	72	NSWCDD	Rate of Fire (RoF) Muzzle Velocity (MV), & Function without Casualty (M230 PP Gun)
AT-17	Extreme Temperature	30*	NSWCDD	Safe to Handle & Dispose
AT-18	Electro-Static Discharge	22	Commercial Lab	Safe to Handle & Dispose
AT-19	Lightning	22	Commercial Lab	Safe to Handle & Dispose



Function & Casualty Firing Test at NSWCDD – Sept 2011

**Distribution A:
Approved for Public Release
Distribution is Unlimited**

- **F&C Test - Ambient & Cold Cartridges 30mm XM950 TP Ctgs**
 - **No Issues, Function & Casualty Test Passed**



Summary of Qualification Program

- 30mm XM950 TP Cartridge Testing Completed By 1 Oct 2011
- Test Report: NSWCDD/MP-12/84 30mm x 113 XM950 Percussion Primed Target Practice Cartridge Qualification Test Report,” dated January 2012 in final review
- US Navy Final Type Qualification (FTQ) Granted - Jan 2012
- Final Operational Capability (FOC) Letter Being Prepared for Submission to WSESRB

Questions?

