

**SISO-REF-059-00-2015**

**Reference for  
UCATT Ammunition Table**

**Version 1.0**

**29 July 2015**

**Prepared by  
Urban Combat Advanced Training  
Technology (UCATT) Product  
Development Group**

**SISO-REF-059-00-2015, Reference for UCATT Ammunition Table**

Copyright © 2015 by the Simulation Interoperability Standards Organization, Inc.

P.O. Box 781238  
Orlando, FL 32878-1238, USA

All rights reserved.

Permission is hereby granted to quote any of the material herein, or to make copies thereof, for non-commercial purposes, as long as the proper attribution is made and this copyright notice is included. All other uses are prohibited without written permission from the SISO Inc. Board of Directors.

SISO Inc. Board of Directors  
P.O. Box 781238  
Orlando, FL 32878-1238, USA

### Revision History

Version	Section	Date (MM/DD/YYYY)	Description
1.0		07/29/2015	Final approved on 9/1/2015

## Participants

At the time this product was submitted to the Standards Activity Committee (SAC) for approval, the UCATT Product Development Group had the following membership and was assigned the following SAC Technical Area Director:

### Product Development Group

Capt Sander Cruiming (Chair)  
Mr Staffan Martinsen (Vice-Chair)  
Mr Joachim Eisenhauer (Secretary)

— — —  
Mr Grant Bailey (SAC Technical Activity Director)  
— — —

Mr. Magnus Alexandersson  
Mr. Jesse Campos  
Mr. Mark Chamberlain  
Mr. Michelle Coriat  
Mr. Thomas Defachelles  
Mr. Philippe Desruelles

Dr. Uwe Dobrindt  
Mr. Rudi Gouweleeuw  
Maj Johnny Gullstrand  
Maj Roger Karlsson  
Mr. Anders Lindström  
LtCol Peter Makowski

Mr. Armin Thinnies  
Mr. Jan Vermeulen  
Mr. Thierry Vinatier  
Mr. Gary Washam  
Mr. Ingo Wittwer

The Product Development Group would like especially to acknowledge those individuals that significantly contributed to the preparation of this product as follows:

### PDG Drafting Group

Mr Anders Lindström (Editor)

Mr. Magnus Alexandersson  
Mr. Jan Vermeulen  
Mr. Jesse Campos

Mr. Thierry Vinatier  
Mr. Joachim Eisenhauer  
Mr. Gary Washam

Mr. Armin Thinnies  
Mr. Ingo Wittwer

When the Standards Activity Committee approved this product on 18 August 2015, it had the following membership:

### Standards Activity Committee

Jeff Abbott (Chair)

Grant Bailey  
Curt Blais  
Peggy Gravitz  
Kevin Gupton

Jean-Louis Igarza  
Bob Lutz  
Lance Marrou  
Lana McGlynn

Thom McLean  
William Oates  
Simone Youngblood

**SISO-REF-059-00-2015, Reference for UCATT Ammunition Table**

When the Executive Committee approved this product on 9 September 2015, it had the following membership:

**Executive Committee**

Michael O'Connor (Chair)  
James Coolahan (Vice Chair)  
Jane Bachman (Secretary)

Jeff Abbott  
John Daly  
John Diem

David Graham  
Paul Gustavson  
Shel Ocasio

Roy Scudder  
Robert Siegfried  
Eric Whittington

## TABLE OF CONTENTS

<b>1</b>	<b>Overview .....</b>	<b>8</b>
1.1	Scope .....	8
1.2	Purpose.....	8
1.3	Objectives .....	8
<b>2</b>	<b>References (Normative) .....</b>	<b>8</b>
2.1	SISO References .....	8
2.2	Other References .....	8
<b>3</b>	<b>Definitions, Acronyms, and Abbreviations.....</b>	<b>8</b>
3.1	Definitions .....	9
3.2	Acronyms and Abbreviations.....	9
<b>4</b>	<b>UCATT Ammunition Table .....</b>	<b>12</b>
4.1	Introduction .....	12
4.2	Optical Coding Structure .....	12
4.3	Ammunition Type Grouping .....	13
4.4	Ammunition Numbering Summary.....	13
4.5	Numbering Summary Section 1 .....	14
4.6	Numbering Summary Section 2 .....	15
4.7	Ammunition Tables .....	16
4.8	Section 1 .....	16
4.9	Section 1a .....	16
4.10	Section 1b .....	17
4.11	Section 1c .....	17
4.12	Section 1d .....	19
4.13	Section 2 .....	19

## LIST OF TABLES

Table 1. Optical Code Characteristics Summary .....	12
Table 2. Ammunition Table Section 2.....	13
Table 3. Real-Time Ammunition Numbering Simulation Characteristics.....	14
Table 4. Ammunition Numbering for Ammunition Table Section 1 .....	15
Table 5. Ammunition Numbering for Ammunition Table Section 2 .....	16
Table 6. Ammunition Table Section 1a.....	16
Table 7. Ammunition Table Section 1b.....	17
Table 8. Ammunition Table Section 1c.....	18
Table 9. Ammunition Table Section 1d.....	19
Table 10. Ammunition Table Section 2.....	19

## 1 Overview

### 1.1 Scope

The UCATT Ammunition Table primarily applies to the UCATT Interface Standard for Laser Engagement, describing how to communicate a simulated weapon engagement from a weapon simulator platform to a target simulator platform.

The UCATT Ammunition Table defines the type of ammunition used in primarily optical communication of a simulated weapon engagement. The subsequent assessment of the simulated effect on the target is not part of this Ammunition Table and thus it has to be separately defined. The intent is that the ammunition type of a simulated weapon engagement is abstracted from the target simulated effect evaluation; i.e. direct fire optically simulated engagement may be complimented or replaced by another type of communication with the same interface requirements to maintain the coalition interoperability objectives.

### 1.2 Purpose

There is a requirement for coalition training of defense forces. Weapons effect simulation has in the past typically evolved with national training requirements resulting in proprietary specifications satisfying specific national needs. The Ammunition Table primarily refers to a laser simulated engagement methodology for direct fire weapon simulation used for e.g. gunnery and combat training. The realization of training specifications across coalition platforms enables interoperability in a live ground training environment.

### 1.3 Objectives

The primary objective of the UCATT Ammunition Table is to establish a specification for the communication of a laser based simulated weapon engagement in a training environment. The intent is to prescribe the use of a number of classes of ammunition types for simulating direct fire weapon systems.

The UCATT Interface Standard for Laser Engagement specifies how the different weapon simulators interact on the exercise area. All simulators on the exercise area have to follow the specification, to ensure that simulators can interoperate properly. The requirements in the UCATT Interface Standard for Laser Engagement and the UCATT Ammunition Table are specifically important when different weapon simulators from different manufacturers shall interact on the exercise area.

## 2 References (Normative)

### 2.1 SISO References

#	Document Number	Title	Date
1.	SISO-STD-016-DRAFT	Standard for UCATT Laser Engagement Interface	

### 2.2 Other References

#	Document Number	Title	Date
	none included		

## 3 Definitions, Acronyms, and Abbreviations

English words are used in accordance with their definitions in the latest edition of Webster's New Collegiate Dictionary except when special SISO Product-related technical terms are required.



### 3.1 Definitions

<u>Term</u>	<u>Definition</u>
none included	

### 3.2 Acronyms and Abbreviations

<b>Acronym or Abbreviation</b>	<b>Meaning</b>	<b>Note</b>
AP	Armour Piercing	
APC	Armoured Personnel Carrier	
API	Armour Piercing Incendiary	
*APimp	Armour-Piercing, Improved	More lethality than an AP. See Note APimp.
*APtop	Armour-Piercing, Top Attack	
DPICM	Dual-Purpose Improved Conventional Munitions	
ERA	Explosive Reactive Armour	
GL	Grenade Launcher	
HE	High Explosive	
*HEair	High Explosive Air Burst	Exploding in the air. See Note HEair.
*HEimp	High Explosive, Improved	More lethality than HE. See Notes APimp.
HEAT	High Explosive Anti-tank	
*HEBB	High Explosive Bunker Buster	
*HEcani	High Explosive Canister	The canister cartridge provides a short range anti-personnel capability
HEDP	High Explosive Dual Purpose	
HE-FRAG	High Explosive Fragmentation	Can be considered as APERS
HEI	High Explosive Incendiary	
HEMP	High Explosive Multi-Purpose	
*HEMPair	High Explosive Multi-Purpose, Air Burst	Exploding in the air. See Note HEair.
*HEMPdd	High Explosive Multi-Purpose with Delayed Detonation	HEMP with delayed detonation. See Note HEMPdd.
*HEMPimp	High Explosive Multi-Purpose, Improved	More lethality than HEMP. See Note APimp.
*HEMPimpair	HEMPimp, Air Burst	Exploding in the air. See Notes APimp and HEair
*HEORT	High Explosive Obstacle Reduction Tank	
HEP	High-Explosive Plastic	US acronym for HESH
HESH	High Explosive Squash Head	See Note HESH
HVAP	High Velocity Armour Piercing	Similar to APCR
HVAPDS	High or Hyper Velocity APDS	
IFV	Infantry Fighting Vehicle	
IUC	Interoperability User Community	
ITKK	Ilmatorjuntakonekivääri	Heavy 12.7mm Machine Gun in Finland
*KETF	Kinetic Energy Time Fuse	ABM-KETF in direct hit

**SISO-REF-059-00-2015, Reference for UCATT Ammunition Table**

<b>Acronym or Abbreviation</b>	<b>Meaning</b>	<b>Note</b>
		role.
*KETFair	Kinetic Energy Time Fuse Air Burst	ABM-KETF detonating in the air.
KVKK	Kevyt Konekivääri	Light Machine Gun in Finland
MPI	Multi-Purpose Incendiary	See Note MPI
MRM-CE	Mid-Range Munition, Chemical-Energy	
MRM-KE	Mid-Range Munition, Kinetic-Energy	
NMISS	Near Miss	
NLETH	Non-lethal	
PKM	Pulemjot Kalašnikova Modernizirovannyi	Heavy 7.62mm Machine Gun in Finland
PPHE	Programmable Pre-fragmented HE	
RCL	Recoilless Rifle	
RHA	Rolled Homogeneous Armour	
RPG	Rocket Propelled Grenade	Russian language: Reaktivnyy/Ruchnoy Protivotankovyy Granatomyot. Hand held anti-tank grenade launcher
SABOT	A carrier designed to centre a smaller calibre projectile in a larger gun barrel.	When the SABOT round is fired, it is normally discarded after leaving the muzzle.
SISO	Simulation Interoperability Standards Organization	
SLAP	Saboted Light Armour Penetrator	Small arms APDS
STAFF	Smart Target Activated Fire-and-Forget	
THBAR	Thermobaric	See Note Thermobaric
TNT equivalent	Trinitrotoluene equivalent	The explosive yield of TNT is considered a standard measure of strength of bombs and other explosives.
TPDS	Training-Practice, Discarding-Sabot	
UCATT	Urban Combat Advanced Training Technology	
WB	Wall Breaker	
3P	Programmable, Pre-fragmented and Proximity	As in KSGR40 3P

**1. NOTE-** \*Ammunition Table acronym only.

**2. NOTE- APimp-**APimp stands for “AP improved” and is used in categories in which the effect spectrum generated by the different calibres and weapon platforms is too wide for one AP code only. APimp has a higher lethality than an AP, a result of longer barrel or modified propellant and/or heavier or stronger penetrator.

**3. NOTE- HEair-**The HEair (HE Air Burst) acronym is used for fused HE ammunitions, set to detonate in air.

**4. NOTE- HEMPdd-**The acronym is used for HEMP ammunitions with delayed detonation, i.e. detonation not at but after impact. It can be achieved by use of, for instance, point-detonation fuse with delay.

**5. NOTE- HESH-** HESH rounds are thin metal shells filled with plastic explosive and a delayed-action base fuse. On impact, the plastic explosive is "squashed" against the surface of the target and spread out to form a disc or "pat" of explosive. A tiny fraction of a second later, the base fuse detonates the explosive, creating a shock wave that, owing to its large surface area and direct contact with the target, conducts very effectively through the material. In the case of metal armour of a tank, the compression shock wave conducts through the armour to the point where it reaches the metal/air interface (the hollow crew compartment) and where some of the energy is reflected as a tension wave. At the point where the compression and tension waves intersect, a high stress zone is created in the metal causing pieces of steel to be projected off the interior wall.

**6. NOTE- MPI.** This cartridge is effective against airborne and light surface threats at ranges up to 2,000 meters. The Multipurpose Concept projectile with delayed reaction carries the effectiveness inside the threat with large fragments and incendiary effects.

**7. NOTE- Thermobaric-** The lethality results from a thermobaric overpressure blast rather than fragmentation. As a result of the thermobaric reaction, all enemy personnel within the effective radius will suffer lethal effects.

## 4 UCATT Ammunition Table

### 4.1 Introduction

A typical weapon simulator is principally built up by two parts, the fire simulator and the target simulator. The weapon simulator may then simulate fire against a target and at the same time receive simulated fire from other weapon simulators.

A weapon simulator may also be made up of only the fire simulator part, as in an anti-tank weapon, or only the target simulator part as on a truck.

The weapon systems have different price levels and the simulator requirements may differ as for example:

- A tank weapon system is an expensive weapon system and the hit accuracy requirements are usually important.
- An anti-tank weapon system is comparatively less expensive but the simulator might have to consider that it shall simulate a "Fire-and-Forget" weapon system.
- A small arms weapon system is even less expensive but the simulator data transfer from the fire simulator to target simulators can be time critical.
- Similar or even equal ammunition type is used in different weapon systems (e.g. 7.62mm coax and machine gun) where the simulator systems requirements still differ.

As a consequence the Ammunition Table has to support different optical encoding methods used to meet the different laser simulator requirements.

### 4.2 Optical Coding Structure

There are four basic optical codes defined in the UCATT Interface Standard for Laser Engagement. The optical codes with related ammunition number series can briefly be described as follows:

The below Table 1 summarizes the optical codes characteristics.

**Table 1. Optical Code Characteristics Summary**

Optical Code	Simulation Principle	Typically a scanning transmitter	Comment
Real-Time	Two-Way	Yes	Ballistic projectiles and guided missiles
Fire-and-Forget	Two-Way	Yes	Fire-and-Forget weapons
Short-Time Scanning	One-Way	Yes	Against soldiers without retro-reflectors
Short-Time	One-Way	No	Small arms weapons

### 4.3 Ammunition Type Grouping

To reduce the number of ammunition types and the resulting number of ammunition numbers, the ammunition types with similar lethality are grouped as illustrated in the example Table 2 below:

**Table 2. Ammunition Table Section 2**

Ammunition Type Grouping Examples

UCATT Ammunition Type	Real Ammunition Type	UCATT Ammunition Type	Real Ammunition Type
AP	AP	HE	APAM
	APCR		APERS
	APDS		DPICM
	APFSDS		HE
	APFSDS-DU		HE-FRAG
	APSE		HEI
	APEP		
	HVAP		
	HVAPDS		
	HEAT	HEAT	HEMP
HESH		HEMP	
HEP			

### 4.4 Ammunition Numbering Summary

The Table 4 and Table 5 in this section summarize the ammunition numbering that come with the UCATT Ammunition Table and to what simulation characteristics they apply.

The ammunition numbering of the UCATT Ammunition Table is divided into two sections.

- Section 1:
  - Ammunition numbers 1 through 79.
  - Non-alternating coded ammunition numbers.
- Section 2:
  - Ammunition types 2001 through 2280 with a vast number of related ammunition numbers.
  - Alternating coded ammunition numbers.

This document referred child ammunition numbers are supplemental numbers providing further simulation potential. Each grandparent or parent ammunition number has one or more related child ammunition numbers. It is possible to fine tune the lethality or for specific training purposes alter the grandparent or parent ammunition lethality using child ammunition numbers. Child ammunition numbers are free to use as for example for national training purposes, but are at least target simulator evaluated as its grandparent ammunition number vulnerability when in multinational training.

Another typical simulation characteristics example is that a top attack engaging missile can detonate with a simulated projectile position above the target and still the target simulator realistically simulates the engagement result.

The Table 4 and Table 5 summary tables include Real-Time Code simulation characteristics that can briefly be described as follows:

**Table 3. Real-Time Ammunition Numbering Simulation Characteristics**

Simulation Characteristics	Abbreviation	*Target simulator(s) typical measured engagement position	Number of fire simulator simulated projectiles or missiles for each optical engagement simulation.
Burst of Fire	RB	Surface impact x-y coordinate	Two. The target simulator(s) compensate(s) with raised vulnerability
Direct Impact	RD	Surface impact x-y coordinate	One
Unarmed	RU	Surface impact x-y coordinate. Impact before arming distance (without explosives detonation)	
Top Attack	RT	Detonation above or surface impact x-y coordinate	
Air Burst 2D	RA	Two dimensional (2D) x-y coordinate.	
Air Burst 3D	RA	Three dimensional (3D) x-y-z coordinate used for calculating engagement distance	

NOTE-\*Target simulators also simulate fly-by and ground hit engagement positions.

#### 4.5 Numbering Summary Section 1

The UCATT Interface Standard for Laser Engagement includes non-alternating coded ammunition numbers 1 through 79 and contains additional Short-Time coded child ammunition numbers. Each of the Short-Time ammunition numbers 47-76 has five related child ammunition numbers as illustrated by the below Table 4.

As for example fused HE ammunition is simulated and optically communicated to the targets to recognize that the engagement was detonating as an air burst. The air burst engagement effect is simulated with a basis of a two dimensional (x-y) measured engagement position.

The following Table 4 summarizes the numbering summary section 1 ammunition numbering and how the numbering supports simulation characteristics:

Table 4. Ammunition Numbering for Ammunition Table Section 1

Simulation Characteristics	*Parent-Child Relationship	Optical Code						
		Real-Time				Short-Time	Fire-and-Forget	Short-Time Scanning
		Section 1a				Section 1c	Section 1b	Section 1d
Direct Impact	Top Attack	Burst of Fire	Air Burst 2D					
Abbreviation Ammo Type		RD	RT	RB	RA	N.A.	FF	N.A.
1-79	None	1-24, 26-29, 31-46				N.A.	25, 30	77-79
	Grand-parent	N.A.				47-76	N.A.	N.A.
	Child	N.A.				1547-1576 1647-1676 1747-1776 1847-1876 1947-1976	N.A.	N.A.

#### 4.6 Numbering Summary Section 2

To the ammunition numbers in section 1 are in section 2 added several hundreds more alternating coded ammunition numbers allowing simulation of numerous weapon platforms and ammunition types. In addition to growth potential, these ammunition numbers also allow the users to as for example:

- Achieve interoperability between coalition forces
- Separate between weapon systems in the battlefield
- Support training against simulated OPFOR weapons.

Together with the ammunition numbers in section 2 there is also an additional support of enhanced simulation principles as for example:

- Three dimension air burst
- Engagement distance dependent lethality
- Weapon arming distance dependent lethality
- More accurate target simulator measurement of projectile or missile engagement position as fire simulator weapon cant angle can be transferred to target simulator.

As illustrated in the below Table 5, the basic number series 1 through 280 is repeated with different digit(s) prefixes. The number series 2001 through 2280 represents the basic ammunition types and the ammunition number prefixes reflect the Ammunition Table support of the UCATT Interface Standard for Laser Engagement multiple optical codes and other simulation characteristics.

As for example HE ammunition, can be simulated and optically communicated to the targets to recognize that the engagement was a direct hit, ground hit, a fly-by or that it was fused and thus detonating as an air burst. The air burst engagement effect is simulated with a basis of a three dimensional (x-y-z) measured engagement position then calculated as an engagement distance.

Another functionality example is interaction with simulator systems without retro-reflectors. The Real-Time two-way simulated ammunitions, requiring target retro-reflectors, are also supplemented with a corresponding ammunition number for Short-Time Scanning one-way simulation requiring no retro-

reflectors.

The following Table 5 summarizes the numbering summary section 2 ammunition numbering and how the numbering supports simulation characteristics:

**Table 5. Ammunition Numbering for Ammunition Table Section 2**

Simulation Characteristics	*Parent-Child Relationship	Optical Code						
		Real-Time					Fire-and-Forget	Short-Time Scanning
		Direct Impact	Top Attack	Burst of Fire	Air Burst 3D	Unarmed		
Abbreviation Ammo Type		RD	RT	RB	RA	RU	FF	SS
2001-2280	Grand-parent	2001-2280		N.A.				
	Parent	N.A.		4001-4280	6001-6280	8001-8280	12001-12280	22001-22280
	Child	3001-3280		5001-5280	7001-7280	9001-9280	13001-13280	23001-23280

#### 4.7 Ammunition Tables

The UCATT Ammunition Table presents ammunition type numbers with related ammunition numbers, caliber/weapon and ammunition type. In case the “Real Ammo Type” is equal to the “UCATT Interface Standard for Laser Engagement Ammo Type” it is for matter of brevity not always written.

#### 4.8 Section 1

Section 1 contains four sections related to fire simulator used optical code.

- 1a. Real-Time
- 1b. Fire-and-Forget
- 1c. Short-Time
- 1d. Short-Time Scanning

#### 4.9 Section 1a

This section contains ammunition numbers related to the Real-Time optical code.

**Table 6. Ammunition Table Section 1a**

Amo No.	Simulation Characteristics					Caliber or Weapon	UCATT Ammo Type	Description	Real Ammo Type
	RD	RT	RB	RA	FF				
1	RD					AP 120mm <2500m	AP		
2	RD					AP 120mm >2500m	AP		
3	RD					HE 120mm	HE		
4	RD					HE 120mm delayed detonation	HE	Detonation behind the wall	
5	RD					AP 105mm	AP		
6	RD					HE 70-90mm	HE		
7	RD					HEAT 105mm	HEAT		
8	RD					HE 105mm	HE		
9	RD					AP 35mm Cannon	AP		
10	RD					AP 20mm Cannon	AP		
11			RB			Ball 5.56mm MG vehicle, burst of fire	Ball	COAX	
12	RD					HOT, anti-tank helicopter	HEAT		



**SISO-REF-059-00-2015, Reference for UCATT Ammunition Table**

Am mo No.	Simulation Characteristics					Caliber or Weapon	UCATT Ammo Type	Description	Real Ammo Type
	RD	RT	RB	RA	FF				
13	RD					MELLS, GILL, Spike, Bill 2, - direct hit	HEAT		
14	RD					TOW, Bill 1 direct hit	HEAT		
15	RD					MILAN	HEAT		
16	RD					HEAT PzF3	HEAT	CG84 HEAT 551, HL PAR 66/79	
17	RD					ABM 30mm direct hit	HE		
18	RD					HEI 20mm Cannon	HEMP		HEI
19	RD					Non-Lethal Weapon, vehicle	Ball		
20	RD					Ammunition without effect	NLETH	Non-lethal ammo, rubber projectiles	
21			RB			AP 20mm Cannon, burst of fire	AP		
22			RB			HE 20mm Cannon, burst of fire	HEMP		
23			RB			Ball 7.62mm MG vehicle, burst of fire	Ball	COAX	
24	RD					HEI PzF3 heavy	HE		HEI
25					FF			See section 1b	
26	RD					HEAT 40mm, AGL	HEAT		
27	RD					HEI 40mm, AGL	HEMP		HEI
28	RD					HEI 35mm Cannon	HEMP		HEI
29	RD					HEMP 12.7mm / HMG / BMG	HEMP		
30					FF			See section 1b	
31	RD					HEAT PzF3 heavy tandem	HEAT	CG84 HEAT 751	
32	RD					PzF Bunkerfaust	HE BB	Bunker buster, CG84 HE 441 direct hit, PAR 66/79 direct hit	
33				RA		ABM 35mm time fuzed	HEair		ABM
34		RT				Bill 1 Top attack	HEAT		
35		RT				Bill 2 Top attack	HEAT		
36				RA		PzF middle air burst	HEair	CG84 HE 441 air burst, PAR 66/79 Hoch	HE
37	RD					AP 12.7mm / HMG / BMG	AP		
38	RD					Bill 2 soft target	HEAT		
39	RD					HEAT PzF light	HEAT	RGW60	
40				RA		ABM 30mm time fuzed	HEair		HE
41				RA		AGL ABM 40mm time fuzed	HEair		HE
42				RA		ABM 120mm time fuzed	HEair		HE
43	RD					Ball 12.7mm HMG / BMG	Ball		
44	RD					AP 30mm	AP		
45	RD					PzF middle	HEAT	CG84 HEAT 651, L-HL PAR 66/79, Ammo with tracer	
46			N.A.			Not yet used	NLETH	Spare	

**4.10 Section 1b**

This section contains ammunition numbers related to the Fire-and-Forget optical code.

**Table 7. Ammunition Table Section 1b**

Am mo No.	Caliber or Weapon	UCATT Ammo Type	Description
25	Fire-and-Forget middle, 70mm helicopter rocket	HEAT	
30	PARS LR, MELLS, GILL, Spike, (F&F heavy)	HEAT	TRIGAT LR

**4.11 Section 1c**

This section contains ammunition type numbers related to the Short-Time optical code. The ammunition type numbers are then related to ammunition numbers as further described in section "4.5 Numbering Summary Section 1".

SISO-REF-059-00-2015, Reference for UCATT Ammunition Table

Table 8. Ammunition Table Section 1c

Ammo Type No.	Corresponding Near Miss No.	Caliber or Weapon	UCATT Ammo Type	Description
47		Not yet used	NLETH	Spare
48	59	IED light, TNT < 5kg, remote range	HE	HEW Mine Hit, Remote range M19 Anti-Personnel Note M19
49	65	IED middle, TNT 5 - 20kg, remote range	HE	HEW Mine Hit, Remote range M100 Anti-Personnel Note M100
50	59	HEMP Hand Grenade	HE	
51	57	Ball 5.56mm MG	Ball	Machine Gun MG4, C7, C8, Minimi, HK416
52	65	Truck bomb TNT >100kg	HE	Truck bomb
53	59	Grenade-thrower	HE	Grenade thrower
54	65	HEMP 12.7mm HMG	HEMP	Heavy Machine Gun MP, Sniper MP
55	57	Non-Lethal Weapon, tear gas	NLW	Tear gas
56	57	Ball 5.56 / 7.62mm Assault weapon	Ball	Assault rifle 5.56: G36, StG 77 7.62: G3, AG-3, HK417
57	57	Near Miss – light hand held weapon	NMISS	Light Small Arms Weapon Near Miss StG, C7, C8, Minimi
58	59	Ball 7.62mm MG	Ball	Machine Gun MG3, MG74, MAG Inf, KVKK (Light MG), PKM (HMG), Chain gun
59	59	Near Miss – middle hand held weapon	NMISS	Middle Small Arms Weapon Near Miss SSG, MG74, MAG Inf.
60	65	HEW Off Route Anti-tank Kill, short range	HEMP	HEW Vehicle Kill DM-12 PARM, 125mm HEAT
61	65	HEW Off Route Anti-tank Hit, remote range	HEMP	HEW Soldier Kill
62	59	Indirect kill, against transported personnel	Kill	Indirect Kill e.g. inside the vehicle
63	59	Indirect kill, back blast	Kill	Backfire from a recoilless weapon AT4 back-blast
64	65	Ball 12.7 mm HMG / Long range rifle	Ball	ÜsMG, Browning .50, ITKK
65	65	Near miss heavy hand held weapon	NMISS	Heavy Small Arms Weapon Near Miss ÜsMG, Browning .50, Accuracy 8.6mm
66	59	HEMP Hand Grenade	HE	
67	67	Non-Lethal Weapon, rubber projectile, concussion grenade	NLW	
68	59	IED light, TNT < 5kg, short range	HE	HEW Mine Kill, Short range M19 Anti-armour Note M19
69	65	IED middle , TNT 5 - 20kg, short range	HE	HEW Mine Kill, Short range M100 Anti-armour Note M100
70	65	IED heavy, TNT 20 - 100kg	HE	
71	65	AP 12.7mm HMG / Long range rifle	AP	G82, ITKK APS, APS
72	59	AP 7.62mm / 8.6mm Sniper	AP	Sniper 7.62mm: G22, SSG69, NM-149 8.6mm: Accuracy, TAK
73	59	HEAT 40mm Grenade Pistol, AG36	HEAT	Grenade Pistol/Rifle

**SISO-REF-059-00-2015, Reference for UCATT Ammunition Table**

Ammo Type No.	Corresponding Near Miss No.	Caliber or Weapon	UCATT Ammo Type	Description
74	59	HEMP 40mm Grenade Pistol, AG36	HE	Grenade Pistol/Rifle
75	57	Ball 4.6mm Machine Pistol, MP7	Ball	Sub-Machine Gun
76	57	Ball 9mm Machine Pistol MP5, Pistol P8	Ball	Pistol, Sub-Machine Gun MP5, Glock 17

**4.12 Section 1d**

This section contains ammunition numbers related to the Short-Time Scanning optical code.

**Table 9. Ammunition Table Section 1d**

Ammo No.	Caliber or Weapon	UCATT Ammo Type	Description
77	Vehicle HE	HE	
78	Vehicle MG	Ball	COAX
79	Anti-tank HE	HE	

**4.13 Section 2**

This section contains ammunition type numbers related to the Real-Time, Fire-and-Forget or Short-Time Scanning optical codes. The ammunition number is given by the below tabled basic ammunition type number and ammunition number digit(s) prefixes. The ammunition number digit(s) prefixes selects optical code as well as other characteristics to the simulation as further described in section "4.6 Numbering Summary Section 2".

**Table 10. Ammunition Table Section 2**

Ammo Type No.	Simulation Characteristics								Caliber or Weapon	UCATT Ammo Type	Description	Real Ammo Type
	RD	RT	RB	RA	RU	FF	SS					
									5.45-6.5mm Assault Rifle Machine Gun		5.56mm Cal. 0.223	
2001	RD		RB						5.45x39mm 5.56x45mm	AP	M995 AP	AP
2002	RD		RB						5.45x39mm 5.56x45mm 5.56mm	Ball	5.45mm M74 (USSR/Russia) Similar as ammo no 56 AK5, Ksp90 .223 Remington / 5,56 NATO (USA) M855 NATO Ball, M193 Ball	Ball
									6.8-8.6mm Assault Rifle Machine Gun		6.8mm Cal. 0.27 7.62mm Cal. 0.30	
2003	RD		RB						7.62x39mm 7.62x51mm	AP		AP
2004	RD		RB						6.8x43mm 7.62x39mm 7.62x51mm 7.62mm	Ball	Similar as ammo no 58 6.8x43mm SPC (Spec. Purpose Cartridge) AK4, Ksp58, Psg90, Ksp m/39, Ksp94 M59, M61, M64, M80 Ball	Ball
									5.45-8.6mm Sniper		5.56mm Cal. 0.223 7.62mm Cal. 0.30	
2005	RD								7.62X51mm 7.62X54Rmm 8.6X70mm	AP	Psg90	AP/SLAP

SISO-REF-059-00-2015, Reference for UCATT Ammunition Table

Ammo Type No.	Simulation Characteristics							Caliber or Weapon	UCATT Ammo Type	Description	Real Ammo Type
	RD	RT	RB	RA	RU	FF	SS				
2006	RD							5.56x45mm	Ball	Mk 262 Sniper	Ball
								7.62X51mm		M118 Long Range	
								7.62X54Rmm			
								8.6X70mm			
							5.56mm Coax Main Gun		5.56mm Cal. 0.223 Tank, IFV, and APC coaxial gun IFV and APC main gun		
2007	RD		RB				5.56mm	AP		AP	
2008	RD		RB				5.56mm	Ball	Vehicle MG	Ball	
							6.8-8.6mm Coax Main Gun HMG		7.62mm Cal. 0.30 Tank, IFV, and APC coaxial gun IFV and APC main gun Heavy Machine Gun		
2009	RD		RB				7.62mm	AP		AP	
2010	RD		RB				7.62mm		Small Arms (M16, M60, Coax), Vehicle Mounted Vehicle coaxial Vehicle MG, Turret MG, Ksp58C, Ksp m/39, Ksp94	Ball	
									Against one-way targets Vehicle coaxial 7.62mm		
							12.7-14.5mm Sniper Rifle Anti-Material Rifle		12.7mm Cal. 0.50		
2011	RD						12.7x99mm	AP	Ag90	AP	
									12.7x107mm		
2012	RD						14.5x114mm	AP		AP	
2013	RD						12.7x99mm	Ball	Ag90	Ball	
									12.7x107mm		
									14.5x114mm		
2014	RD						12.7x99mm	HEMP	Ag90	MP	
									12.7x107mm		
									14.5x114mm		
							12.7mm Coax Main Gun HMG		12.7mm, Cal 0.50 Tank, IFV, and APC coaxial gun IFV and APC main gun Heavy Machine Gun		
2015	RD		RB				12.7x99mm	AP	M2, M8, M20	AP	
									12.7mm		
									12.7x107mm		
							12.7x99mm	APS		AP	
2017	RD		RB				12.7x99mm	Ball	Heavy MG M2, M85, M82, M95 Barrett sMG, BMG, üsMG (weich) KSP (Tksp)	Ball	
									12.7x107mm		
									12.7mm		
									Against one-way targets Vehicle coaxial 12.7mm		
2018	RD		RB				12.7x99mm	HEMP	Mk 211 MP sMG, BMG, üsMG KSP (Tksp)	MP	
									12.7x107mm		
							14.5mm Coax Main Gun HMG		Tank, IFV, and APC coaxial gun IFV and APC main gun Heavy Machine Gun		
2019	RD		RB				14.5x114mm	AP		AP	
2020	RD		RB				14.5x114mm	Ball	BTR-80, RSKK RSKK: Raskas konektivääri	Ball	
2021	RD		RB				14.5x114mm	HEMP		HEMP	

SISO-REF-059-00-2015, Reference for UCATT Ammunition Table

Ammo Type No.	Simulation Characteristics							Caliber or Weapon	UCATT Ammo Type	Description	Real Ammo Type
	RD	RT	RB	RA	RU	FF	SS				
								20-50mm Grenade Rifle		20, 25, 30, 35, 40, 43mm	
2022	RD							40x46	APERS		HE
								40mm	HE	M406	
				RA					APERS	M576 Using the 3D detonation model, detonating when directly leaving the gun muzzle	Buckshot
2023	RD							40mm	HEMP	M433	HEDP
										M430	
										40x46 MEI Hellhound	
										M79	
								Shotgun		10-, 12-, 16-, 20-, 28-, 67-Gauge	
2024	RD							Shotgun	APERS	Using the 3D detonation model, detonating when directly leaving the gun muzzle	Buckshot
				RA							
2025	RD							Shotgun	HEMP	Using the 3D detonation model, detonating when directly leaving the gun muzzle	Buckshot
				RA							
								AGL ≤35mm		AGL: Automatic Grenade Launcher 20, 30mm	
2026	RD			RA				20, 25mm	HE		HE
				RA					HEair	XM1018, XM1019	
2027	RD							20, 25mm	HEcani	Using the 3D detonation model, detonating when directly leaving the gun muzzle	APERS
				RA							
2028	RD							20, 25mm	HEMP		HEDP
2029	RD							20, 25mm	HEAT		HEAT
								AGL >35mm		AGL: Automatic Grenade Launcher 40, 43mm	
2030	RD			RA				40x53	HE	AGL HE	HE
2031	RD							40mm	HEcani	MK19 with M1001 Canister	APERS
				RA						Using the 3D detonation model detonating when directly leaving the gun muzzle	
2032	RD							40mm	HEMP	MK19 with M430	HEDP
										XM320	
										AGL with HEI or HEDP	HEI
										ONTSIRP	HEDP
									Extended Range Low Pressure" (ERLP) 40x51mm	HEDP	
2033	RD							40mm	HEAT	AGL with shaped charge ammo	HEAT
								<25mm Cannon		Fast-firing, automatic guns	
2034	RD		RB					20mm	AP	Opfor 20-23mm	APDS
2035	RD		RB					20mm	APimp	On-board mounted MG	APDS
										Mk 149 CIWS, Mk 244 CIWS	
										PGU-2/B SAPHE	APHE
										PGU-28A/B SAPHEI	APHEI
									M53 API, M601 API-T, M775 API-T	API	
									ZSU 23-4	API	
									ZSU 23-4, SABOT	SABOT	
2036	RD		RB	RA				20mm	HEMP	On-board mounted MG	HE, HEI, HEMP
										20/41 Slbrhpg 95 (Pbv302, Ptgb203)	
										M56 HEI, M56A3 HE/I	HEI
										M210 HEI, M242 HEI-T	HEI
										M940 MPT-SD	MPI
									SIRP	HEMP, HEAT	
									ZSU 23-4, HEAT		
								25-29mm Cannon		Fast-firing, automatic guns	
2037	RD		RB					25mm	AP	Opfor 25-29mm	APDS
2038	RD		RB					25mm	APimp	YPR AP	AP
										YPR AP 163-3	
										XM1049	
										M791 APDS-T, M919 APDS-T	APDS

SISO-REF-059-00-2015, Reference for UCATT Ammunition Table

Ammo Type No.	Simulation Characteristics							Caliber or Weapon	UCATT Ammo Type	Description	Real Ammo Type
	RD	RT	RB	RA	RU	FF	SS				
										PGU-20/U API	APHEI
2039	RD			RA				25mm	KETF	ABM-KETF direct detonation, fly by or air burst	ABM-KETF
2040	RD		RB	RA				25mm	HEMP	M792 HEI-T, MK210 HEI-T	HEI
										PGU-22 HE-I, PGU-25 HE-I,	HEI
										PGU-32/U, SAPHEI, PGU-38/U HE-I	HEI
								30-34mm Cannon		Fast-firing, automatic guns	
2041	RD		RB					30mm	AP	BMP-2 PS Opfor APC 2 AP	APDS APFSDS APEP
										PGU-14/B API	API
2042	RD		RB					30mm	APimp	Ulan KE CV9030 APFSDS-T Bluefor APEP and APDS	APDS APFSDS APEP
2043	RD			RA				30mm	KETF	ABM-KETF direct detonation, fly by or air burst	ABM-KETF
2044	RD		RB	RA				30mm	HEMP	BMP-2 SIRP Opfor APC HE	HEMP
2045	RD		RB	RA				30mm	HEMPimp	Ulan MZ CV9030 MPLD-T and MP-T	HE MP MPLD
										Bluefor HE	
								35-39mm Cannon		Fast-firing, automatic guns	
2046	RD							35mm	AP	On-board mounted MG ALIK	AP
2047	RD			RA				35mm	KETF	ABM-KETF direct detonation, fly by or air burst	ABM-KETF
2048	RD			RA				35mm	HEMP	On-board mounted MG SIRP	HEI, HEMP
2049	RD							35mm	HEMPdd	Delayed detonation	HEMP
								40mm Cannon		Fast-firing, automatic guns	
2050	RD							40mm	AP	CV90	AP
2051	RD			RA				40mm	KETF	ABM-KETF direct detonation, fly by or air burst	ABM-KETF
2052	RD							40mm	HEAT	PSGR	HEAT
2053	RD							40mm	HEMP	CV90 SGR	HE
								40x46mm		M406HE , M381HE, M386HE, M441HE	
								40x53mm		M383 HE, M384 HE	
								40mm	HEMPair	Air burst CV90 KSGR CV90 KSGR 3P	HEMP
										M397 Air burst , M397A1 Air burst MK285 XM1060 Thermobaric Round	
2054									HEMPdd	Delayed detonation	HEMP
								<76mm AT Gun RPG, RCL		RPG: Rocket Propelled Grenade RCL: Recoilless Rifle	
2055	RD			RA				40mm	HE	RPG-7 with OG-7V	HE
								73mm		OPFOR APC HE	
								75mm		Type 69	
2056	RD							66mm	HEAT	M72 LAW	HEAT
								64mm		RPG-18	
								73mm		RPG-22, RPG-26	
										OPFOR APC 73mm HEAT	
							77-94mm AT Gun RPG, RCL		RPG: Rocket Propelled Grenade RCL: Recoilless Rifle		
2057	RD							84mm RPG, RCL	HE	84mm Carl Gustaf direct impact CG84 with HE441B and HE441D HE PAR 66/79 AUF	HE
								92mm		Type 69	HE-FRAG
					RA			84mm RPG, RCL	HEair	84mm Carl Gustaf air burst CG84 with HE441B and HE441D PAR 66/79 HOCH	HE

SISO-REF-059-00-2015, Reference for UCATT Ammunition Table

Ammo Type No.	Simulation Characteristics							Caliber or Weapon	UCATT Ammo Type	Description	Real Ammo Type
	RD	RT	RB	RA	RU	FF	SS				
										SGR 84 time fuzed Also as ammo no. 36	
2058	RD						84mm	HEAT 1	84mm Carl Gustaf CG84 with HEAT 551C CG84 with HEDP 502 (HEAT role) PzF3 LGS, HL PAR 66/79 84/48 SLPSGR 75, Psk84 Also as ammo no. 31 SMAW HEAA Rockeye, SMAW AT4, M136 AT4 HEAT, AT4CS RPG-7 with PG7V Type 69-1 Matador (PZF-90) MP HEAT Role Matador (PZF-90) MP HESH Role M371E1 HEAT LAW80 Type 69-II, Type 69-III (RPG)	HEAT	
							83mm				
							84mm				
							85mm				
							85mm				
							90mm				
							90mm RPG, RCL				
							94mm RPG, RCL				
2059	RD						84mm	HEAT 2	CG84 HEAT 751 RPG-7 with PG7VL Against one-way targets	HEAT	
							93mm				
2060	RD						84mm	ADM	CG84 ADM 401 (Area Defence Munition)	ADM	
2061	RD						84mm	HEMP	Tandem warhead CG84 MT 756 (Multi Target, behind wall) AT4 AST (delayed detonation)	AST	
2062	RD						84mm	HEMP	CG84 HEDP 502 (delayed detonation) AT4 AST (mouse hole role) Matador (PZF-90) WB (Wall Breaching) PzF90 (delayed detonation)	AST	
							90mm				
2063	RD						84mm	HEMP	CG84 ASM 509 (Anti-Structure Munition) Direct impact role Matador (PZF-90) AS (Anti-Structure Munition) Direct impact role	ASM	
							90mm				
2064	RD						84mm	HEMPdd	CG84 ASM 509 (Anti-Structure Munition) Delayed detonation role Matador (PZF-90) AS (Anti-Structure Munition) Delayed detonation role	ASM	
							90mm				
							95-109mm AT Gun RPG, RCL		RPG: Rocket Propelled Grenade RCL: Recoilless Rifle		
2065	RD						105mm	HE	OF-883A	HE	
							107mm				
2066	RD						105mm	HEAT	RPG-7 with PG-7VR	HEAT	
							107mm		RPG-27		
									RPG-29 with PG-29V BK-883		
2067	RD						105mm	HEMP	Multi-Purpose Munition	HEMP	
2068	RD						105mm	HE BB	RPG-7 with TBG-7V RPG-29 with TBG-29V RPG-27 with RShG-1	THBAR	
							≥110mm AT Gun RPG, RCL		RPG: Rocket Propelled Grenade RCL: Recoilless Rifle		
2069	RD						110mm	HE	PzF3 HE and HEI	HE HEI	
2070	RD						110-112mm	HEAT	PzF3 shaped charge PzF3 HEAT 112mm APILAS, RSKSKO	HEAT	
2071	RD						110mm	HEMP	Multi-Purpose Munition	HEMP	
2072	RD						110mm	HE BB	PzF3 Bunker Buster (delayed detonation)	HE	

SISO-REF-059-00-2015, Reference for UCATT Ammunition Table

Ammo Type No.	Simulation Characteristics							Caliber or Weapon	UCATT Ammo Type	Description	Real Ammo Type	
	RD	RT	RB	RA	RU	FF	SS					
								≤76mm Gun Tank, IFV and APC		57, 73, 76mm IFV: Infantry Fighting Vehicle APC: Armoured Personnel Carrier		
2073	RD							73mm	AP		AP APC APFSDS	
2074	RD							73mm	HE		HE	
2075	RD							73mm	HEAT		HEAT	
								77-94mm Gun Tank, IFV and APC		82, 84, 85, 90mm		
2076	RD							90mm	AP	M77 AP-T, M318 AP-T, M318A1 AP-T	AP	
										M332A1 HVAP-T	HVAP-T	
										M82 APC-T	APC-T	
										M690 APFSDS	APFSDS	
2077	RD		RA					90mm	HE	M71 HE, M71A1 HE-T	HE	
2078	RD							90mm	HEAT	M348A1 HEAT, M431 HEAT-T	HEAT	
2079	RD							90mm	HEMP	M691 HESH-T, M692 HESH-TP	HESH	
								95-103mm Gun Tank, IFV and APC		100mm		
2080	RD							100mm	AP	3UBM10	APFSDS	
										UBR-412B, BR-412B, JPSV, PSV	APHE	
										UBM-2, UBM-8	APFSDS	
										UBM-6	HVAPDS	
2081	RD		RA					100mm	HE	Opfor APC HE	HE	
										3UOF10, 3UOF11	HE-FRAG	
										UOF-3, UOF-412, UO-415		
2082	RD							100mm	HEAT	3BK-5M, 3UBK9, 3BK16M, 3BK17M	HEAT	
										BK3, BK5, JPRSV, M69	HEAT-T	
										Type 73, UBK-412R	HEAT	
										UBK-2, UBK-4, UBK-4M, UBK-9M	HEAT	
								104-109mm Gun Tank, IFV and APC		105, 106		
2083	RD							105mm	AP	M724A1	TPDS	
										M392 APDS-T, M728 APDS-T		
										JaPzK APFSDS		APDS
										APDS-T		
2084	RD							105mm	APimp	APFSDS-T	APFSDS	
										M735 APFSDS-T, M774 APFSDS-T		
										M833 APFSDS-T, M900 APFSDS-T		
										FP105, Olin 105		
2085	RD							105mm	HE	M494 APERS-T	HE	
									HEair	M393A3, M546		
2086	RD		RA					105mm	HEcani	APAM	Canister	
										M1040 Canister Using the 3D detonation model, detonating when directly leaving the gun muzzle		
2087	RD							105mm	HEMPdd	Delayed detonation	HEMP	
2088	RD							105mm	HEAT	JaPzK L-HL	HEAT	
										Leopard 1 HEAT-T	HEAT-T	
										Leopard 1 HEP-T	HEP-T	
										M456 HEAT-T, M662 HEAT-T	HEAT-T	
										XM815 HEAT-MP	HEAT-MP	
										M393A2	HEP	
MRM	MRM-CE											
2089	RD							105mm	HEMP		HEMP	
								110-116mm Tank, IFV and APC		115mm		
2090	RD							115mm	AP	OPFOR MBT FSAPDS	APDS	
										UBM-3, UBM-9	APFSDS-T	
										UBM-5	HV APFSDS-T	



SISO-REF-059-00-2015, Reference for UCATT Ammunition Table

Ammo Type No.	Simulation Characteristics							Caliber or Weapon	UCATT Ammo Type	Description	Real Ammo Type
	RD	RT	RB	RA	RU	FF	SS				
2091	RD			RA				115mm	HE	OPFOR, MBT HE 3UOF-37, UOF-37, UOF-6	HE HE-FRAG
2092	RD							115mm	HEAT	OPFOR MBT HEAT UBK-3, UBK-3M	HEAT HEAT-T
								117-122mm Tank, IFV and APC		120, 122mm	
2093	RD							120mm	AP	Leopard 1APDS Strv 121 AP	APDS
2094	RD							120mm	APimp	M829A1/A2/E3 APFSDS-T Leopard 2 APFSDS-T Challenger APFSDS Strv122 AP DM63A1KE, DM53A1KE DM43A1KE, DM33A1KE Advanced Tungsten KE Cartridge	APFSDS
2095		RT						120mm	APtop	XM943 STAFF, top attack	STAFF
2096	RD							120mm	HEcani	M1028	Canister
				RA						M1028 Using the 3D detonation model detonating when directly leaving the gun muzzle	
2097	RD							120mm	HE	Leopard HE AMOS Strv 121 and Sgr M908 M933, M934 DM12A2MP, M337	HE HEORT HEMO HEMP
				RA					HEair	Air burst	ABM
						SS			HE	Vehicles HE	HE
2098	RD							120mm	HEMPdd	Delayed detonation	HEMP
2099	RD							120mm	HEAT	M830A1 HEAT Leopard 2 HEAT Challenger HESH MRM	HEAT HESH MRM-CE
2100	RD							120mm	HEMP	Leopard HEMP	HEMP
								≥125mm Tank, IFV and APC		125mm	
2101	RD							125mm	AP	T-90 APFSDS OPFOR MBT 125mm FSAPDS BR-471B VBR-472	APDS APHE APC-T
2102		RT						125mm	APtop	Top attack	AP
2103	RD							125mm	HE	T-90 HE OPFOR MBT 125mm HE Type 83 OF-1, M76, Type 54 OF-56, OF-56-1, Type 462 OF-462, OF-471N, OF-472	HE DPICM HE-FRAG
				RA					HEair	Air burst	HE
2104	RD							125mm	HEAT	OPFOR MBT HEAT BK-9, BP-463 BK-6M, BK-13, BK463UM, 3UBK-9	HEAT HEAT-FS
								≤94mm Mortar, Field Gun and Art.Rockets		50, 51, 52, 70, 76, 60, 81, 82, 88mm	
2105	RD							70mm	HE	Type 71 Artillery Rocket FZ LAU-97: FZ-71 Artillery Rocket FZ LAU-97: FZ-85 Artillery Rocket Hydra 70: M151	HE HE-FRAG PFHE
								80mm		SGR80, GA	HE

SISO-REF-059-00-2015, Reference for UCATT Ammunition Table

Ammo Type No.	Simulation Characteristics							Caliber or Weapon	UCATT Ammo Type	Description	Real Ammo Type
	RD	RT	RB	RA	RU	FF	SS				
								105mm		M915, 105mm M916, 105mm	DPICM HE
				RA				70mm	HEair	Artillery Rocket FZ LAU-97: FZ-100 Artillery Rocket Hydra 70: M151 - time fuzed Art. Rocket Hydra70: M261 - remote fuzed Art. Rocket Hydra 70: M255 - remote fuzed	Cargo HE MPSM HE HE
2106	RD							70mm 73mm	HEAT	Artillery Rocket FZ LAU-97: FZ-49 Artillery Rocket FZ LAU-97: FZ-58 73mm 2.75inch Rocket	HEAT AP HEAP HEAT
								95-149mm Artillery, Mortar, Field Gun, Artillery Rocket		100, 105, 107, 120, 122, 130mm	
2107	RD							100mm 105mm 107mm 122mm 120mm 120mm 122mm 130mm 130mm 130mm 130mm 130mm	HE	Type 71 M915, M916 Type 63 rocket 122mm ARTY DF AMOS SGR120/GA 120mm (GRK) OGR 120 PR Firos 25/30 rocket M46 BR-482B Type 59, M79, OF33 OF-482M HE-482M	HE DPICM HE DPICM HE APHE APHE-T HE HE-FRAG HE
				RA				122mm	HEair	Air burst	HE
2108	RD							120mm 122mm	HEAT	Psgr 120mm STRIX (GRK) Firos 25/30 rocket	HEAT
2109	RD							130mm	THBAR	M79BB	THBAR
								≥150mm Artillery, Mortar, Field Gun		152, 155, 160, 165, 175, 180, 203, 240, 305mm	
2110	RD							152, 155mm 155mm 160mm 180mm 203mm 240mm 280mm 305mm	HE	152mm 155mm M483A1, M864, Type 66 M107, M549A1, M795, M795E1, M864 SIRP SGR 155A (Haubits 77) F-853A, F-853U G-572 G-620 F864 675 724	HE DPICM HE
				RA				155mm	HEair	SGR 155Z (Haubits77)	HE
2111	RD							Anti-tank Missile, Russia	THBAR		THBAR
2112	RD					RU		AT-4, Spigot 9M111, "Fagot" AT-5, Spandrel 9M113, "Konkurs"	HEAT	BMP, BMD, BRDM, manpack mounts; can be fired from AT-5 launchers 9M113, BMP, BMD, BRDM, manpack mounts; can be fired from AT-4 launchers BMP-2, PST082 OPFOR APC ATGW	HEAT
2113	RD					RU		AT-9, Spiral-2 9M120, "Ataka"	HE BB		HE BB
2114	RD					RU		AT-8, Songsterd 9M112, "Ataka" AT-9, Spiral-2 9M120, "Ataka"	HEAT	125mm gun launched; T-64B and early T-80 HAVOC, HOKUM, HIND E/F launchers	HEAT
2115	RD					RU		AT-10, Stabber 9M117, "Bastion" AT-10, Stabber 9M117M, "Kan"	HEAT	100 and 115mm gun launched; T-55, T-62, MT-12, and BMP-3 100 and 115mm gun launched; T-55, T-62, MT-12, and BMP-3	HEAT

SISO-REF-059-00-2015, Reference for UCATT Ammunition Table

Ammo Type No.	Simulation Characteristics							Caliber or Weapon	UCATT Ammo Type	Description	Real Ammo Type	
	RD	RT	RB	RA	RU	FF	SS					
								AT-10, Stabber 9M117M1, "Arkan"		100 and 115mm gun launched; T-55, T-62, MT-12, and BMP-3 OPFOR APC ATGW		
2116	RD				RU			AT-11, Sniper 9M119, "Svir" 9M119M, "Refleks"	HEAT	125mm gun launched; T-72, T-80, T-84, T-90 OPFOR MBT ATGW	HEAT	
2117	RD				RU			AT-12 9M117	HEAT	Uses the same missile as the AT-10 115mm gun launched; T-62	HEAT	
								AT-12, Swinger 9M117M, "Sheksna"		Uses the same missile as the AT-10 115mm gun launched; T-62		
								AT-12, Swinger 9M117M1, "Sheksna"		Uses the same missile as the AT-10 115mm gun launched; T-62 OPFOR MBT ATGW		
2118	RD				RU			AT-13, Saxhorn-2 9M131, "Metis-M"	HEAT	METIS-M: 9K115-2	HEAT	
								AT-14, Spriggan 9M133, "Kornet"		152mm. Tripod or vehicle-mounted; thermal viewer effective to 3500m		
								AT-15, Springer 9M123, "Kriz-antema"		150mm		
2119	RD				RU			AT-13, Saxhorn-2 9M131F, "Metis-M"	HE BB		HE BB	
								AT-14, Spriggan 9M133F, "Kornet"				
								AT-15, Springer 9M123F, "Kriz-antema"				
								AT-16, Scallion, "Vikhr"		Air to ground system		
2120	RD				RU			HEAT	AT-16, Scallion, "Vikhr"	Air to ground system	HEAT	
2121	RD					RU			HE	AT-16		HE
				RA					HEair	Time fuzed direct detonation		
2122	RD							SA-14, Gremlin 9M36, "Strela-3"	HE		HE	
								SA-16, Gimlet 9M313, "Igla-1"				
								SA-18, Grouse 9M39, "Igla-M"				
2123	RD							HE	SA-24, Grinch 9M342, "Igla-S"		HE	
Anti-tank Missile, US												
2124	RD								HEAT	Maverick, 57 kg hollow charge with contact fuze	HEAT	
										135 kg high explosive		
2125	RD				RU			AGM-114K	HEAT	Hellfire II US, Swedish, NATO, and Israeli use	HEAT	
								AGM-114N		Metal augmented charge		
2126	RD				RU			AGM-114KII	HE	External blast frag sleeve	HEMP	
								AGM-114M		Blast fragmentation		HE-FRAG
								AGM-114L		Longbow Hellfire		HE
2127	RD				RU			HEAT	AGM-BGM-XYZ	Joint Air to Ground Missile (JAGM)	HEAT	
2128	RD				RU			HE	AGM-BGM-XYZ	Joint Air to Ground Missile (JAGM)	HE-FRAG	
2129	RD				RU	SS		TOW	HEAT		HEAT	
								BGM-71D		TOW 2		
								BGM-71A		Basic TOW		
								BGM-71C		ITOW		
								Predator		Direct attack		
								Troopfan 2		Copy of TOW		
								HJ-8E		Red Arrow 8		
								Baktar-Shikan, Pakistan		Copy of TOW, China		
								KAM9/ TYPE 79		License production of HJ-8		
	Similar to TOW, Japan											
2130	RD				RU			TOW 2A	HEAT	RB55C	HEAT	
								M220/ BGM-71E				
2131	RD				RU			HE BB	TOW 2A, M220/ BGM-71H	TOW 2A Bunker Buster	HE BB	

SISO-REF-059-00-2015, Reference for UCATT Ammunition Table

Ammo Type No.	Simulation Characteristics							Caliber or Weapon	UCATT Ammo Type	Description	Real Ammo Type
	RD	RT	RB	RA	RU	FF	SS				
								Predator, FGM-172B SRAW-MPV		Predator. Multi-purpose variant (MPV) blast fragmentation warhead, which will convert the system into a direct attack urban assault weapon, effective against buildings and bunkers.	
2132		RT			RU			TOW 2B , M220/ BGM-71F	HEAT	TOW 2B top attack. RB55E	HEAT
								Predator FGM-172A		Top attack. UK Kestrel	
2133	RD				RU			TOW 2B air launched	HEAT	TOW 2B Aero TOW 2B RF	HEAT
2134	RD				RU			LOSAT	HEAT	Fire-and-Forget weapon system Line-Of-Sight Anti-tank weapon using Kinetic Energy Missile (KEM)	HEAT
2135	RD				RU			M47 Dragon	HEAT	Dragon, Saudi, Yugoslav, Swiss, Moroccan, Jordanian and other users	HEAT
2136	RD				RU	FF		Javelin	HEAT	Fire-and-Forget weapon system Javelin direct attack	HEAT
2137		RT			RU	FF		Javelin	HEAT	Javelin top attack. Imaging Infrared (I2R)	HEAT
2138	RD							Stinger (Fire-and-Forget) Ground to Air	HE	Stinger, GILL	HE
								Type 87		Stinger copy from Japan Also as ammo no. 25 Stinger, GILL	
								Anti-tank Missile, Europe			
2139	RD				RU			HOT 1	HEAT	HOT 1, HOT Ground Several missile versions; anti-reactive armour capability	HEAT
								HOT 2			
								HOT 3			
2140	RD				RU			HOT air launched	HEAT	HOT PAH	HEAT
2141	RD				RU			MILAN 2	HEAT	Ground and vehicle mounts	HEAT
2142	RD				RU			MILAN 2T	HEAT	Tandem warhead	HEAT
								MILAN 3			
								MILAN ER			
2143	RD				RU			TRIGAT MR	HEAT	PARS 3 MR	HEAT
2144	RD				RU			TRIGAT LR, MELLs	HEAT	Direct attack MELLs - direct	HEAT
2145		RT			RU			TRIGAT LR, MELLs	HEAT	Top attack	HEAT
									HEAT	Also as ammo no.30 PARS LR, MELLs	
2146	RD				RU			NLAW	HEAT	Fire-and-Forget weapon system NLAW direct attack RB57 direct attack, origin Sweden ShoRats, NBTPsk, Pskott2000	HEAT
2147		RT			RU			NLAW	HEAT	NLAW top attack RB57 top attack, origin Sweden ShoRats, NBTPsk, Pskott2000	HEAT
2148	RD				RU			ERYX	HEAT	Origin France HE Calibre 137mm SM-137	HEAT
2149	RD				RU			Brimstone	HEAT	Single and multiple launch, origin UK	HEAT
2150	RD				RU			Bill 1. Direct attack	HEAT		HEAT
2151		RT			RU			Bill 1. Top attack	HEAT	Proximity and top attack mode. Also as ammo no. 34. Origin Sweden	HEAT
2152	RD				RU			Bill 2. Direct attack	HEAT		HEAT
2153		RT			RU			Bill 2. Top attack	HEAT	Also as ammo no. 35. Origin Sweden	HEAT
2154	RD				RU			Bill 1 and Bill 2. Soft Target	HEAT	Also as ammo no. 38. Origin Sweden	HEAT
2155	RD							RBS-70	HE	RBS-70 MK0. Origin Sweden	HE

SISO-REF-059-00-2015, Reference for UCATT Ammunition Table

Ammo Type No.	Simulation Characteristics							Caliber or Weapon	UCATT Ammo Type	Description	Real Ammo Type
	RD	RT	RB	RA	RU	FF	SS				
										RBS-70 MK1. Origin Sweden	
2156	RD				RU			RBS-70	HEAT	RB90 MK2. Origin Sweden	HEAT
2157	RD				RU			RBS-70	HEAT	Direct attack BOLIDE ITO2005. Origin Sweden	HEAT
2158		RT			RU			RBS-70	HEAT	Top attack BOLIDE. Origin Sweden	HEAT
								Anti-tank Missile, International			
2159	RD				RU			SPIKE-SR Direct attack	HEAT	Short Range	HEAT
2160	RD				RU	FF		SPIKE-MR Low Trajectory	HEAT	Medium Range GILL Low Trajectory	HEAT
2161	RD				RU	FF		SPIKE-MR High Trajectory	HEAT	Medium Range GILL High Trajectory	HEAT
2162	RD				RU			SPIKE-LR Direct attack	HEAT	Long Range Also as ammo no. 13	HEAT
2163		RT			RU			SPIKE-LR Top attack	HEAT	Long Range	HEAT
									HEAT	Also as ammo no. 30	
2164	RD				RU			SPIKE-ER	HEAT	Extra Long Range. NTD Dandy	HEAT
2165	RD							Mokopa	HEAT	Origin S.Africa	HEAT
								Ingwe		Origin S.Africa	
								Non-Lethal Less Lethal		As for example tear gas shells, bean bags, stun rounds and rubber projectiles.	
2166	RD							Ammo with no effect	NLETH	Ammo with no effect	NLETH
2167	RD							≤76mm	NLETH	M385, M918, M203, Mk19, XM320 M1006 Sponge Round (Point), M651 CS M1029 Crowd Dispersal Cartridge	NLETH
								40mm Grenade			
								40mm			
								40mm			
2168	RD							77-109mm 105mm	NLETH	Stun Cartridge	NLETH
2169	RD							≥110mm	NLETH	Stun Cartridge	NLETH
								120mm			
								Horizontal Effects Weapon Improvised Explosive Device			
2170	RD							IED light TNT <5kg	HE	As for example improvised shrapnel packed together with a number of dynamite cartridges.	HE
								Booby-trap			
								Suicide Bomber			
								IED light TNT <5kg		Using the 3D detonation model	
2171	RD				RA			IED medium, TNT 5-20kg	HE	E.g. 120mm HE shells armed as an IED Using the 3D detonation model	HE
2172	RD				RA			IED heavy, TNT 20-100kg	HE	Using the 3D detonation model	HE
2173	RD				RA			Truck bomb, TNT >100kg	HE	Using the 3D detonation model	HE
2174	RD							HEW Off-Route Anti-tank	HEAT	DM-12 PARM M24 mine	HEAT
								Handgrenade			
2175	RD							100g TNT equivalent	HE	Fragmentation grenade	FRAG
								M67			
								F1			
					RA			100g TNT equivalent		Using the 3D detonation model	
2176	RD							250g TNT equivalent	APERS	Concussion grenade MK3A2	Concussion
								MK3A2			
					RA			250g TNT equivalent		Using the 3D detonation model	
2177	RD							M84	NLETH	Stun grenade	Stun
								Engagement Alert		To inform the target about an engagement	
2178	RD							Laser Range Fire	NLETH	A LRF is made against the target	
2179	RD							Laser Designator	NLETH	A Laser designation is done against the target	
2180	RD							Laser Beam Rider	NLETH	A Laser beam riding missile is engaging the target	
2181	RD							IFF A	NLETH	Identification Friend or Foe. IFF is done by A (Bluefor)	
2182	RD							IFF B	NLETH	IFF is done against the target by B (Opfor)	

SISO-REF-059-00-2015, Reference for UCATT Ammunition Table

Ammo Type No.	Simulation Characteristics							Caliber or Weapon	UCATT Ammo Type	Description	Real Ammo Type
	RD	RT	RB	RA	RU	FF	SS				
	RD							IFF answer		Answer to a friendly IFF Not simulated	
2183	RD							Munition Flame	NLETH	Simulate the fact that the target may visually recognize that a weapon is fired against the target	
								Short-Time Scanning		Primary dedicated Short-Time Scanning simulation. May still be used also in Real-Time simulation	
2184	RD						SS	Near Miss ≤8.6mm	NMISS	5.56, 7.62mm Cal 0.223, 0.30	
2185	RD						SS	Near Miss >8.6mm	NMISS	12.7, 14.5, 20, 30, 35, 40mm	
2186	RD						SS	Universal Kill	Kill	Universal Kill	
2187	RD						SS	Helmet off Kill	Kill	Punishing soldiers with helmet taken off	
								Additional		Additional Simulated Functions	
2188	RD							RF SAM	HE	RF Surface to Air Missile	HE
2189	RD							Secondary Effects Kill	Kill	As for example shrapnel from a tank hit	
2190	RD							Flame-thrower	Kill		
								Main Gun Danger Zones			
2191	RD							Short Range Main Gun Danger Zone	Kill	As for example lethality caused by petals or gun overpressure when standing typically up to 200m in front of a tank gun	
										Using the 3D detonation model	
2192	RD							Remote Range Main Gun Danger Zone	Kill	As for example lethality caused by petals when standing typically 200-1000m in front of a tank gun	
								Spare ammo numbers			
2193 to 2280	N.A.							Spare ammo types			

**NOTE- M19.** Although M19 is an anti-tank mine, for simulation purposes a specific long range anti-personnel code is required to give the possibility of adjusting the Laser effect radius and vulnerability. Used on its own, it simulates a larger type of anti-personnel mine.

**NOTE- M100.** Although M100 is an anti-tank mine, for simulation purposes a specific long range anti-personnel code is required to give the possibility of adjusting the Laser effect radius and vulnerability. Used on its own, it simulates a larger type of anti-personnel mine.