



Introduction to the Marauding Terrorist Attack Standard (MTAS)

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Physical Security

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Foreword

Marauding Terrorist Attacks (MTA) are fast-moving, violent incidents where assailants move through a location aiming to find and kill or injure as many people as possible. Attackers are drawn by movement and deterred by seemingly unoccupied locations as well as by anything that may take time and effort to overcome, such as a locked door.

This document provides an introduction to the Marauding Terrorist Attack Standard (MTAS) developed by the Centre for the Protection of National Infrastructure (CPNI).

MTAS provides a means for determining the delay (resistance time) of a physical barrier (product) against either:

- **the use of bladed weapons to attack the physical barrier in order to achieve access through it;**
- **the use of firearms to attack the physical barrier followed immediately by a forced entry attempt using manually operated tools; or**
- **detonation of a small explosive device (improvised or plastic explosive) in contact with the physical barrier, or a person borne improvised explosive device (PBIED) in close proximity to the physical barrier, followed immediately by a forced entry attempt using manually operated tools.**

NOTE: MTAS focusses on the delay a barrier can afford against the attacks stated above. It does not consider the ease with which barriers can be secured and unlocked to aid escape. It is therefore extremely important to understand how easily a barrier can be secured and unlocked to aid escape.

The standard should be read in conjunction with CPNI MTA guidance documents, in particular, CPNI's guide entitled "*Marauding Terrorist Attacks: Technical Supplement: Physical barriers that delay and discourage attackers*". This and other guidance is available from CPNI's website¹.

The standard is used by CPNI to commission independent forced entry testing of physical barriers to classify their performance and approve their use for protecting UK government, national infrastructure and crowded places.

It is CPNI's intention that the standard be used in conjunction with any British, European or International Standards that are applicable to the installation of the product under test.

The standard will be updated from time to time to take into account changes in threat. It is imperative the latest version be used and that references to it include the version number and date (e.g. version 1.0 March 2015).

CPNI has not been able to evaluate every variant of commercial products or systems as defined within the Scope of this document as there are too many on the market. However, from CPNI's

¹ <https://www.cpni.gov.uk/marauding-terrorist-attacks-1>

subject matter expert's (SME) knowledge and research, CPNI have identified key features which may delay the progress of an MTA attack.

Introduction

CPNI's Marauding Terrorist Attack Standard (MTAS) is intended to improve on the previous methods of forced entry testing by reflecting changes to the range of forced entry threats faced by UK government, national infrastructure and crowded places. In particular, MTAS focuses on the threat of:

- **Bladed weapon attacks.** This BASIC level attack involves the use of bladed weapons to gain access to an area that is considered by the site to be relatively safe from an MTA.
- **Ballistic forced entry (BFES).** This involves the use of a firearm (phase 1) followed by the use of manually operated tools (phase 2) to an area that is considered by the site to be relatively safe from an MTA.
- **Energetic forced entry (EFES).** This involves detonation of an explosive placed in contact with the surface of a physical barrier or a PBIED in close proximity to a barrier (phase 1). This is followed by the use of manually operated tools (phase 2) to gain access to an area that is considered by the site to be relatively safe from an MTA.

The standard classifies the delay a product provides to such entry attempts according to the time taken to breach the product during the manual attack phase. The classification attributed to a product also reflects:

- **Generic levels of knowledge and experience of those actors likely to attempt marauding attacks on buildings.**
- **Availability of tools and weapons to those likely to conduct such attacks.**
- **Methodology likely to be employed.**

The standard attributes one or more performance levels to a product according to its resistance to five alternative levels of attack.

CPNI use the results of tests conducted in accordance with the standard to develop guidance documents and determine the MTAS resistance classifications attributed to specific products and generic designs. Products that achieved MTAS resistance classifications are listed in CPNI's Catalogue of Security Equipment (CSE). The CSE also contains a number of generic designs which are based on CPNI's SME knowledge and research.

MTAS will be updated to reflect changes to forced entry threats faced by UK government, national infrastructure and crowded places when required; for example due to advancements in attacker knowledge and/or resources available to the attacker. Specifications referring to the standard should therefore mention the latest version (e.g. MTAS v1.0) unless it has been demonstrated that products meeting earlier versions will address the threats identified.

There is no correlation between the performance levels a product may achieve when evaluated to MTAS and those a product may achieve when evaluated to standards addressing other threat scenarios, such as: CPNI's manual forced entry standard (MFES); other forced entry standards (for example EN1627, LPS1175 and PAS24); or standards for bullet and blast resistance.

In many situations, it will be appropriate for products to be tested and approved to other standards which demonstrate the product delivers general security performance; including electronic and cyber, as appropriate to the technologies incorporated in the product; or other critical performance attributes such as fire, acoustics and general durability.

Scope

The performance classification system defined in MTAS can be applied to the following types of barrier:

- Doorsets;
- Fixed and rising glass security screen systems;
- Fences and external free-standing walls;
- Gates;
- Glazing and window protection;
- Modular room systems;
- Revolving glass doors and tubestiles;
- Roller shutters;
- Turnstiles;
- Walling systems; and
- Other systems required to deliver resistance to ballistic forced entry.

The standard applies to marauding terrorist attacks involving up to two phases:

- Phase 1 - A single attacker either:
 - using bladed weapons in order to achieve entry through that product (BASIC); or
 - firing one or more rounds at the product with the objective to weaken it in order to achieve entry through that product (BFES); or
 - detonating an explosive device while it is either placed in contact with the surface of a physical barrier or a PBIED in close proximity to the product (EFES).
- Phase 2² - Up to two attackers using manually operated tools to exploit the damage sustained by the product during Phase 1 in order to achieve entry through the product.

MTAS does not determine a product's resistance to attacks conducted by more than two attackers (e.g. mob attacks).

Furthermore, although MTAS caters for attacks involving the use of firearms and/or explosives to breach a product, it is not intended to define nor measure a product's bullet or blast resistance. Where such resistance is required, reference should be made to suitable standards. Furthermore, MTAS does not consider the hazard to people located on the protected side of the product when one or more rounds are fired at the product or an explosive device is detonated in its vicinity.

² This phase does not apply to BASIC level bladed weapon attack tests.

MTAS does not cover the use of vehicles or marine vessels to impact a product or apply other loads to a product in order to breach it.

Performance Classifications

Products are attributed performance classifications following the completion of a series of attack tests conducted on specimens representative of that product by Attack Testers appropriate to the attack level(s) sought.

The objective of each attack test is for the Attack Tester(s) to breach the product as quickly as possible; creating an aperture that permits them to pass an elliptical test block representative of a person's torso through the specimen uninhibited.

The nature of the attack tests conducted on a specimen depend on the performance classification sought. With the exception of attack tests conducted at the BASIC level, individual attack tests involve two phases:

- A ballistic weapon or explosive device is used during phase 1 of an attack test to inflict damage that either results in the product being breached or that weakens the product.
- An attack tester (LOW and MODERATE attack levels) or pair of Attack Testers (HIGH and EXPERT attack levels) use a selection of tools applicable to the target attack level sought in order to breach the product during phase 2 by exploiting the damage sustained during the previous phase.

The performance classifications attributed to products in accordance with MTAS indicate the following:

- The attack level, in terms of its sophistication (BASIC, LOW, MODERATE, HIGH or EXPERT).
- The type of weapon (and associated round), i.e.:
 - H = Handgun
 - R = Rifle
 - S = Shotgun
- The type of explosive device used, i.e.:
 - PB = Pipe bomb
 - PE = Plastic explosive
 - U = PBIED

The minimum delay to forced entry provided by the product during the manual attack phase. This is indicated by the resistance time classification defined in Table 2.

Please note that whilst all products listed in the CSE have been subjected to some aspects of MTAS testing, most products have not been tested against all MTAS test classifications stated in this document. In those case, the performance classifications have instead been selected by CPNI SMEs using a process based on assumptions attributed to those products based on (i) the SME's knowledge of similar tests; and (ii) similar product designs.

Table 1: Attack levels defined in MTAS

Attack Level	Number of Attackers	Knowledge	Weapons ³	Tools
BASIC	1	Limited knowledge of security products and attack methodologies	Bladed weapon	Fire extinguisher
LOW	1		Handgun (H) Shotgun (S)	
MODERATE	1	Limited knowledge of security products and attack methodologies but slightly more skilled than a BASIC or LOW level attacker	Rifle (R) Pipe bomb (PB) Person borne improvised explosive device (U)	Basic hand tools
HIGH	2	Familiar with security products and how they operate and have received training on generic attack techniques	Plastic explosive	Wider selection of hand tools and battery powered tools
EXPERT	2	Highly developed levels of knowledge and ability to plan attacks in detail and significant resources to support the implementation of their planned attacks		Specialist method of entry tools

Table 2: Resistance Time Classifications

Resistance Time Classification	MINIMUM Working Time (t) Required to Compromise the Product
FAIL	0 seconds
0.5	30 seconds
1	1 minute
2	2 minutes
3	3 minutes
4	4 minutes
5	5 minutes
7	7 minutes
10	10 minutes

Table 3: Example Performance Classifications

PRODUCT	BLADED WEAPON BASIC	Ballistic Forced Entry Standard (BFES)									Energetic Forced Entry Standard (EFES)						
		LOW		MODERATE			HIGH			EXPERT	LOW	MODERATE		HIGH			EXPERT
		H	S	H	S	R	H	S	R			PB	U	PB	PE	U	
A	0.5	Fail	Fail	Fail	Fail	Fail	Fail	Fail	Fail	Fail	N/A	Fail	Fail	Fail	Fail	Fail	Fail
B	5	4	3	1	Fail	Fail	Fail	Fail	Fail	Fail	N/A	-	-	-	Fail	-	Fail

³ Each level includes the weapons available to attackers at lower attacker levels.

In the examples shown in Table 3:

- Product A has been demonstrated to:
 - Offer a delay of at least 30 seconds resistance to BASIC level forced entry attempts using a bladed weapon but no greater than 1 minute of resistance to that level of attack.
 - Be unable to offer a delay of at least 30 seconds against BFES or EFES type attacks.

- Product B has been demonstrated to:
 - Offer at least 5 minutes resistance to BASIC level forced entry attempts using a bladed weapon.
 - Offer at least 4 minutes resistance to LOW sophistication level MTA attacks and 1 minutes resistance to MODERATE sophistication level MTA attacks using a handgun.
 - Offer at least 3 minutes resistance to LOW sophistication level MTA attacks using a shotgun.
 - Be unable to offer a delay of at least 30 seconds against MODERATE level BFES using a shotgun or rifle.
 - Be unable to offer a delay of at least 30 seconds against HIGH and EXPERT level or BFES type attacks regardless of the type of firearm used.
 - Be unable to offer a delay of at least 30 seconds against EFES type attacks utilising plastic explosives.

- There is insufficient data available to confirm the resistance provided by Product B when targeted using energetic forced entry methods involving the use of either a pipe bomb or person born improvised explosive device.

A product that does not deliver at least 30 seconds delay to forced entry will not be allocated an MTAS performance classification.

Sourcing Products that meet CPNI's MTAS Standard

Products and generic designs that have been attributed MTAS performance classifications following successful testing to MTAS are listed in CPNI's Catalogue of Security Equipment (CSE).

It is the responsibility of the equipment supplier and equipment purchaser to ensure a product is suitable to its particular application and complies with all relevant legislation, standards, codes of practice and/or any other requirement.