

REFERENCE COPY

DEVELOPMENT AND PROOF SERVICES  
ABERDEEN PROVING GROUND, MARYLAND  
FIRING RECORD

USATECOM Project No. 8M-3020-01,  
Feasibility Test of a Special  
Muzzle Attachment

Firing Record No.: S-46425  
Dates of Test: 16 to 20 March 1963  
Authority: BRL DF dtd  
15 February 1963

AMCMS Code No.: 5025.11.571  
Related Firing Record: S-46424

W. O. No. 344-315-53 vg

ITEM UNDER TEST

Special Muzzle Attachment (Figure 1 and 2).

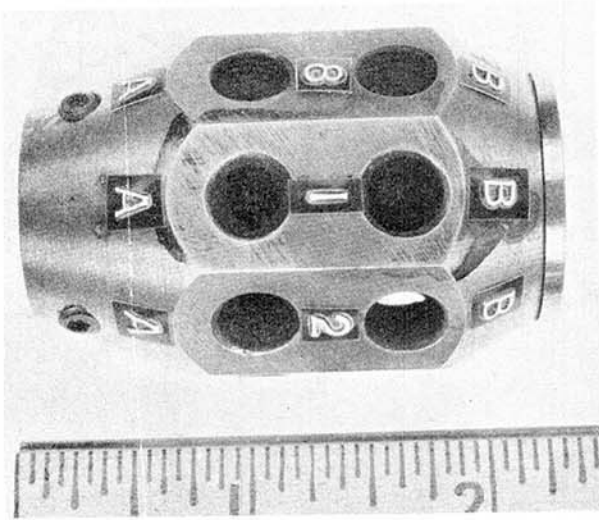


Figure 1: Special Muzzle Attachment.

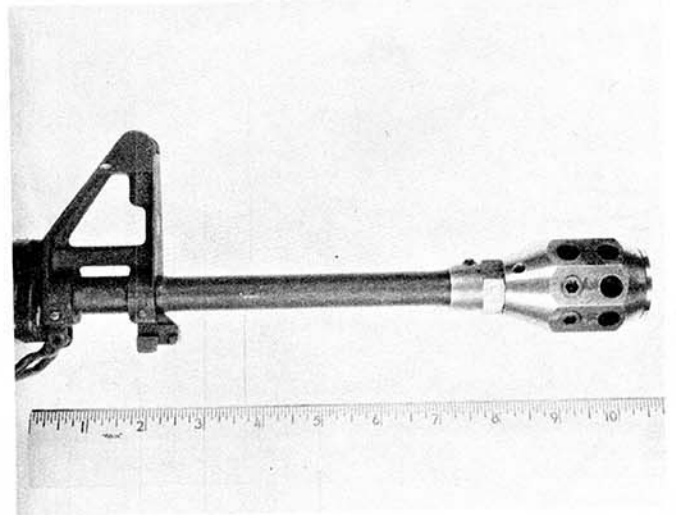


Figure 2: Muzzle Attachment Mounted on Rifle.

The purpose of the muzzle device is to decrease the dispersion in automatic fire. It is octagonally shaped with two 3/8-inch internally threaded

"Destroy when no longer  
needed. DO NOT RETURN"

Digitized by:

ports on each of the eight flats. It may be adjusted to various settings for each rifleman by opening or closing the ports by means of threaded screws. It weighed approximately 0.6 pound.

#### SUPPORTING FACILITIES AND MATERIALS

##### Weapon:

Rifle, caliber .223, AR15, No. 8271.

##### Facilities:

Outdoor range, 25-meter, equipped with an 8- by 8-foot plywood target.

#### DETAILS OF TEST

A plan for firing an AR15 rifle equipped with a special muzzle attachment was agreed upon by representatives of the Ballistic Research Laboratories and Development and Proof Services. The plan called for four tests. Tests I and II were conducted previously and the results are contained in Firing Record No. S-46424. The plans for Tests III and IV were similar to those for Tests I and II, respectively. These tests required the same five rifleman who participated in Tests I and II.

In Phase I of Test III, each rifleman determined a setting of the muzzle attachment which gave the smallest average extreme spread for a 3-round burst from the prone position. A maximum of 12 different settings were used to determine the desired setting. The setting was then verified by firing three trials. Using the setting determined best for him, the rifleman then fired ten 3-round bursts from both the prone and standing position. This procedure was repeated for each rifleman.

In Phase II of Test III, the procedure used for Phase I was repeated using a 2-round burst.

In Phase I of Test IV, each rifleman fired three 3-round bursts with each of the settings determined in Phase I of Test III to determine the setting which gave the smallest average extreme spread for the five riflemen. Using this setting, each rifleman then fired ten 3-round bursts from both the prone and standing positions.

In Phase II of Test IV, the procedure used for Phase I of Test IV, was repeated using 2-round bursts and the settings determined in Phase II of Test III.

The summaries of Tests III and IV are contained in Table I.

The determined muzzle attachment settings used in Phases I and II of Test III are shown in Table II while the settings used for Phase I and II of Test IV are shown in Table III.

Table I. Dispersion, Inches<sup>a</sup>

Rifleman	<u>Extreme Spread</u>		<u>Extreme Diameter</u>		<u>Extreme Spread</u>	
	<u>Prone</u>	<u>Standing</u>	<u>Prone</u>	<u>Standing</u>	<u>Prone</u>	<u>Standing</u>
Phase I, Test III, 3-round bursts				Phase II, Test III, 2-round bursts		
Crowther	10.0	18.9	10.0	19.1	4.7	15.0
Eller	6.6	31.4	6.6	31.4	4.4	21.6
Staley	10.8	26.1	10.9	26.1	3.0	8.0
Keele	9.3	29.7	9.4	29.7	4.8	21.9
Connolly	10.2	13.4	10.7	13.4	4.2	7.1
Average	9.4	23.9	9.5	23.9	4.2	14.7
Phase I, Test IV, 3-round bursts				Phase II, Test IV, 2-round bursts		
Crowther	8.3	21.4	8.3	21.5	7.1	8.6
Eller	7.4	17.4	7.4	17.4	4.1	9.5
Staley	9.2	20.0	9.2	20.0	5.5	9.4
Keele	6.6	27.1	6.6	27.1	5.4	6.1
Connolly	33.1	47.0	33.1	47.0	15.6	17.2
Average	12.9	26.6	12.9	26.6	7.5	10.2

<sup>a</sup>The average extreme spreads and extreme diameters for ten bursts at 25 meters are given in inches. Extreme spread is defined as the distance between the centers of the extreme shots in a burst. Extreme diameter is defined as the diameter of the circle that will include the centers of the extreme shots in a burst.

Table II. Muzzle-Attachment Settings Used for Test III

The flats on the muzzle attachment were numbered 1 through 8, No. 1 being the top flat. The ports on each of the eight flats were lettered A and B, respectively. An X under the lettered column indicates the port was lost. An 0 indicates the port was open.

Rifleman	Flat No.															
	1		2		3		4		5		6		7		8	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
Phase I																
Crowther	0	0	0	0	0	0	X	X	X	X	X	X	X	0	0	0
Eller	0	0	0	0	0	0	X	X	X	X	X	X	X	0	0	0
Staley	0	0	0	0	0	0	X	X	X	X	X	X	X	0	0	0
Keele	0	0	0	0	0	0	X	X	X	X	X	X	X	0	0	0
Connolly	0	0	0	0	0	X	X	0	0	X	0	X	X	0	0	0
Phase II																
Crowther	0	0	0	0	0	0	X	X	X	X	X	X	0	X	0	0
Eller	0	0	0	0	0	0	X	X	X	X	X	X	0	X	0	0
Staley	0	0	0	0	0	0	0	X	X	X	X	X	0	0	0	0
Keele	0	0	0	0	X	0	X	X	X	X	X	X	0	X	0	0
Connolly	0	0	0	0	0	X	X	X	X	0	X	0	0	X	0	0

Table III. Muzzle-Attachment Settings Used for Test IV

	Flat No.															
	1		2		3		4		5		6		7		8	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
Phase I																
	0	0	0	0	0	0	X	X	X	X	X	X	X	0	0	0
Phase II																
	0	0	0	0	0	0	0	X	X	X	X	X	0	0	0	0

In addition to Tests III and IV the plan called for each rifleman to fire three 3-round bursts and three 2-round bursts from the prone position with all ports of the muzzle attachment open. A summary of the test is shown in Table IV.

Table IV. Dispersion Resulting with Automatic Fire, Inches<sup>a</sup>

Rifleman	Three-Round Burst		Two-Round Burst
	Extreme Spread	Extreme Diameter	Extreme Spread
Crowther	26.0	26.0	18.3
Eller	15.8	15.8	16.3
Staley	31.9	31.9	22.7
Keele	21.4	21.4	20.9
Connolly	42.6	42.6	19.8
Average	27.5	27.5	19.6

<sup>a</sup>Firing was accomplished from the prone position with all ports of the muzzle attachment open. The extreme spread and extreme diameter for each rifleman are an average of three bursts.

The data and records of the muzzle-attachment settings used for Test III and IV are contained in Inclosure 2.

## OBSERVATIONS AND REMARKS

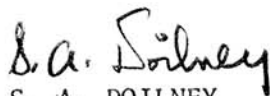
It was difficult to determine a muzzle attachment setting for the prone position which would be consistent from burst to burst because of the inability of the individual to repeat exactly his actions and reactions. Two important factors were the exact replacement of the buttstock on the shoulder and the exact replacement of the supporting arm under the rifle with the hand in the same location on the forestock.

SUBMITTED:



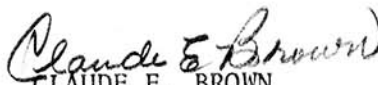
E. J. KEELE  
Test Director

REVIEWED:



S. A. DOILNEY  
Chief, Small Arms and  
Aircraft Weapons Branch

APPROVED:



CLAUDE E. BROWN  
Chief, Infantry and  
Aircraft Weapons  
Division

4 Incls

1. Correspondence
2. Attachment-Setting Data
3. Function Report
4. Distribution

# DISPOSITION FORM

(AR 340-15)

Firing Record No. S-46425

OFFICE SYMBOL OR FILE REFERENCE

SUBJECT

AR-15 Test Firing

TO Chief, Small Arms & Aircraft  
Wpns Br, Inf & Airc Wpns Div,  
D&PS

FROM Acting Chief, Weapon  
Systems Laboratory, BRL

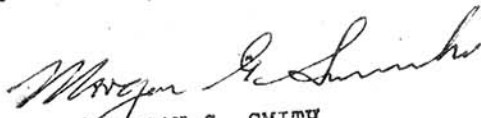
DATE FEB 15 1963 CMT 1  
MrCarn/djt/49185

1. Test firings are requested using an AR-15 rifle with a muzzle brake and compensator (MBC). A cost and completion time estimate are also requested. These firings would be similar to those previously requested in a DF Form dated 26 Dec 62, Subject: AR-15 Test Firings. It would be desirable to employ the five firers previously used; namely, Keele, Staley, Crowther, Connolly and Eller. As before all firers will fire 2 and 3 round bursts per trigger pull from the prone and standing position. The x and y coordinates of all impact points measured from the aim point (target center) should be recorded. All firings should be conducted for 25 meters range and with the HEL MBC design (octagonal with 16 holes).

2. Exercises I and II were accomplished in the previous test. The requested firings will comprise Exercises III and IV. Exercise III is the same as Exercise I except the MBC will be set (with desired setting) for each firer when firing from the prone position. Then each firer will fire from the standing position without changing the compensator setting. The desired compensator setting is the one which yields the smallest extreme spread. Extreme spread is defined as the diameter of the circle on the target that just includes the 2 or 3 shots per trigger pull.

3. Exercise IV is the same as Exercise II where the single setting to be used by all firers will be based on prone firings. The compensator setting used for Exercise IV will be that setting which yields the lowest extreme spread when averaged over all firers.

4. Exercises III and IV will require 1000 rounds for record and approximately 300-500 rounds (based on past experience) for determining desired compensator settings. Weapons and ammunition are to be procured by D&PS.



MORGAN G. SMITH

Acting Chief

Weapon Systems Laboratory

Inclosure 1, page 1

DA FORM 2496  
1 FEB 62

REPLACES DD FORM 96, EXISTING SUPPLIES OF WHICH WILL BE  
ISSUED AND USED UNTIL 1 FEB 63 UNLESS SOONER EXHAUSTED.

\* U.S. GOVERNMENT PRINTING OFFICE: 1962 O-629168

AMSTE-BC

28 MAR 1963

SUBJECT: Project Assignment (USATECOM Nr. 8M-3020-01)

TO: Commanding Officer  
Aberdeen Proving Ground  
Attn: STEAP-DS-TI  
Aberdeen Proving Ground, Md.

1. Reference Research Test Firing from Chief, Weapon Systems Laboratory, Ballistic Research Laboratories to Chief, Small Arms, and Aircraft Weapons Br, Infantry and Aircraft Weapons Division, Development and Proof Services, requesting AR-15 test firing using muzzle brake and compensator.

2. This project is completed, but the above USATECOM Nr. should be referred to in all future correspondence and reports.

3. As directed by USATECOM Reg Nr. 705-2, two copies of all reports will be forwarded to this headquarters for information.

FOR THE COMMANDER:

Copy Furnished:  
Dir, BRL  
Attn: M. R. Carn  
Wpns Sys Lab, BRL

JOHN W. RODGERS,  
Colonel GS  
C, Admin Div

## Attachment-Setting Data

The flats on the muzzle attachment were numbered 1 through 8, No. 1 being the top flat. The ports on each of the eight flats were lettered A and B, respectively. An X under the lettered column indicates the port was closed. An O indicates the port was open.

Rifle No.: Rifle, Caliber .223, AR15, No. 8271, equipped with special muzzle attachment.

Range: 25 meters. All measurements are given in inches.

Setting No.	Trial No.	Flat No.																Extreme Spread
		1		2		3		4		5		6		7		8		
		A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	

## Trials to Determine Best Setting for Test III, Phase I

Fired in 3-round bursts from the prone position.

Rifleman: Crowther

	1	1	0	0	0	0	0	0	X	X	X	X	X	X	0	X	0	0	6.1
	2	2	0	0	0	0	X	0	X	X	X	X	X	X	0	X	0	0	13.1
	3	3	0	0	0	0	0	0	X	X	X	X	X	X	X	0	0	0	6.4
	4	4	0	0	0	0	0	0	X	X	X	X	X	X	0	0	0	0	12.6
Repeat	3	5	0	0	0	0	0	0	X	X	X	X	X	X	X	0	0	0	5.6
Repeat	3	6	0	0	0	0	0	0	X	X	X	X	X	X	X	0	0	0	5.3

## Trials to Verify Setting No. 3

	1	0	0	0	0	0	0	X	X	X	X	X	X	X	0	0	0	6.5
	2	0	0	0	0	0	0	X	X	X	X	X	X	X	0	0	0	10.1
	3	0	0	0	0	0	0	X	X	X	X	X	X	X	0	0	0	11.6

Rifleman: Eller

	1	1	0	0	0	0	0	0	X	X	X	X	X	X	0	X	0	0	5.6
Repeat	1	2	0	0	0	0	0	0	X	X	X	X	X	X	0	X	0	0	11.2
	2	3	0	0	0	0	0	0	X	X	X	X	X	X	X	0	0	0	11.3
	3	4	0	0	0	0	0	X	X	X	X	X	X	X	X	0	0	0	21.3
Repeat	2	5	0	0	0	0	0	0	X	X	X	X	X	X	X	0	0	0	10.9
Repeat	1	6	0	0	0	0	0	0	X	X	X	X	X	X	0	X	0	0	12.5
Repeat	2	7	0	0	0	0	0	0	X	X	X	X	X	X	X	0	0	0	3.7

## Trials to Verify Setting No. 2

	1	0	0	0	0	0	0	X	X	X	X	X	X	X	0	0	0	8.7
	2	0	0	0	0	0	0	X	X	X	X	X	X	X	0	0	0	10.9
	3	0	0	0	0	0	0	X	X	X	X	X	X	X	0	0	0	13.8

Setting No.	Trial No.	Distance from Index Point						Distance between Shot Holes						Extreme Spread	Extreme Diameter
		1st Round		2nd Round		3rd Round		1 to 2		1 to 3		2 to 3			
		Hor	Vert	Hor	Vert	Hor	Vert	Hor	Vert	Hor	Vert	Hor	Vert		

Trials to Determine Best Setting for Test III, Phase I

Fired in 3-round bursts from the prone position.

Rifleman: Crowther

1	1	-0.3	-1.7	-0.5	+0.5	+1.0	+4.1	-0.2	+2.2	+1.3	+5.8	+1.5	+3.6	6.0	6.0
2	2	-.5	-0.8	+7.1	-2.1	+11.2	+5.0	+7.6	-1.3	+11.7	+5.8	+4.1	+7.1	13.1	13.1
3	3	-.1	-1.2	-0.7	+1.3	-5.6	+2.0	-0.6	+2.5	-5.5	+3.2	-4.9	+0.7	6.4	6.4
4	4	-.4	-1.4	+7.4	+4.1	+10.6	+4.6	+7.8	+5.5	+11.0	+6.0	+3.2	+0.5	12.6	12.6
Repeat	3	-.3	-1.0	+3.8	+2.7	+2.5	+1.7	+4.1	+3.7	+2.8	+2.7	-1.3	-1.0	5.6	5.6
Repeat	3	-1.2	-1.2	-1.7	-2.2	-6.1	+0.8	-0.5	-1.0	-4.9	+2.0	-4.4	+3.0	5.3	5.3

Trials to Verify Setting No. 3

1	1	-0.2	-1.4	+2.9	+0.5	+1.1	+4.9	+3.1	+1.9	+1.3	+6.3	-1.8	+4.4	6.5	6.5
2	2	-.4	-2.1	-2.7	-2.4	-6.5	+5.8	-2.3	-0.3	-6.1	+7.9	-3.8	+8.2	10.1	10.1
3	3	-1.0	-1.1	-1.8	+3.2	-11.1	+4.8	-0.8	+4.3	-10.1	+5.9	-9.3	+1.6	11.6	11.6
														Average	9.4

Rifleman: Eller

Repeat	1	+1.9	-0.4	+2.5	-6.0	+5.2	-4.6	+0.6	-5.6	+3.3	-4.2	+2.7	+1.4	5.6	5.7
Repeat	2	+0.5	-0.2	+0.1	-1.2	+2.1	+9.7	-0.4	-1.0	+1.6	+9.9	+2.0	+10.9	11.2	11.2
Repeat	3	+1.2	-0.3	-2.1	-3.9	-8.0	+5.7	-3.3	-3.6	-9.2	+6.0	-5.9	+9.6	11.3	11.4
Repeat	4	+0.3	-0.5	+9.2	-7.6	+21.1	+3.9	+8.9	-7.1	+20.8	+4.4	+11.9	+11.5	21.3	21.3
Repeat	5	+1.0	-1.4	-0.1	-7.5	-3.4	+2.8	-1.1	-6.1	-4.4	+4.2	-3.3	+10.3	10.9	10.9
Repeat	6	-0.3	+1.1	-0.7	+3.7	+0.2	+13.5	-0.4	+2.6	+0.5	+12.4	+0.9	+9.8	12.5	12.5
Repeat	7	+1.4	-0.9	+0.8	-4.2	-2.1	-2.1	-0.6	-3.3	-3.5	-1.2	-2.9	+2.1	3.7	4.1

Trials to Verify Setting No. 2

1	1	+0.4	+0.3	+6.2	-3.4	+8.4	-3.2	+5.8	-3.7	+8.0	-3.5	+2.2	+0.2	8.7	8.7
2	2	+1.3	-0.2	+5.8	-6.7	+12.0	-2.1	+4.5	-6.5	+10.7	-1.9	+6.2	+4.6	10.9	10.9
3	3	-0.1	+0.6	-1.4	+6.6	-8.7	+11.3	-1.3	+6.0	-8.6	+10.7	-7.3	+4.7	13.8	13.8
														Average	11.1

Setting No.	Trial No.	Flat No.																Extreme Spread
		1		2		3		4		5		6		7		8		
		A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	

Trials to Determine Best Setting for Test III, Phase I

Fired in 3-round bursts from the prone position

Rifleman: Staley

	1	1	0	0	0	0	0	0	0	X	X	X	X	X	0	0	0	0	13.5
	2	2	0	0	0	0	0	0	X	X	X	X	X	X	0	0	0	0	7.8
Repeat	2	3	0	0	0	0	0	0	X	X	X	X	X	X	0	0	0	0	14.3
	3	4	0	0	0	0	0	0	X	X	X	X	X	X	0	0	0	0	7.8
Repeat	3	5	0	0	0	0	0	0	X	X	X	X	X	X	0	0	0	0	8.7

Trials to Verify Setting No. 3.

	1	0	0	0	0	0	0	X	X	X	X	X	X	0	0	0	0	8.5
	2	0	0	0	0	0	0	X	X	X	X	X	X	0	0	0	0	10.2
	3	0	0	0	0	0	0	X	X	X	X	X	X	0	0	0	0	10.7

Rifleman: Keele

	1	1	0	0	0	0	0	0	X	X	X	X	X	X	0	0	0	0	12.3
	2	2	0	0	0	0	0	0	X	X	X	X	X	X	0	0	0	0	24.1
	3	3	0	0	0	0	0	0	X	X	X	X	X	0	X	0	0	10.0	
	4	4	0	0	0	0	0	X	X	X	X	X	X	X	0	0	0	6.3	
Repeat	1	5	0	0	0	0	0	0	X	X	X	X	X	X	0	0	0	10.1	
Repeat	4	6	0	0	0	0	0	X	X	X	X	X	X	X	0	0	0	23.9	
Repeat	4	7	0	0	0	0	0	X	X	X	X	X	X	X	0	0	0	31.1	
Repeat	1	8	0	0	0	0	0	0	X	X	X	X	X	X	0	0	0	10.2	

Trials to Verify Setting No. 1

	1	0	0	0	0	0	0	X	X	X	X	X	X	0	0	0	0	10.0
	2	0	0	0	0	0	0	X	X	X	X	X	X	0	0	0	0	9.0
	3	0	0	0	0	0	0	X	X	X	X	X	X	0	0	0	0	6.7

Setting Trial No.	Distance from Index Point				Distance between Shot Holes				Extreme Spread	Extreme Diameter				
	1st Round		2nd Round		3rd Round		1 to 2				1 to 3		2 to 3	
	Hor	Vert	Hor	Vert	Hor	Vert	Hor	Vert			Hor	Vert	Hor	Vert

Trials to Determine Best Setting for Test III, Phase I

Fired in 3-round bursts from the prone position

Rifleman: Staley

1	1	+0.2	-1.1	-6.0	+0.8	-10.9	+6.7	-6.2	+1.9	-11.1	+7.8	-4.9	+5.9	13.5	13.5
2	2	+ .3	-0.1	+ 2.2	-7.7	+ 3.7	- 3.0	+ 1.9	-7.6	+ 3.4	- 2.9	+ 1.5	+ 4.7	7.8	7.8
Repeat	2	+ .2	-0.5	+ 8.0	-2.9	+13.8	+ 3.8	+ 7.8	-2.4	+13.6	+ 4.3	+ 5.8	+ 6.7	14.3	14.3
3	4	+ .1	-1.2	- 0.2	-9.0	- 2.8	- 3.2	- 0.3	-7.8	- 2.9	- 2.0	- 2.6	+ 5.8	7.8	7.8
Repeat	3	- .1	-0.7	- 2.6	-5.8	- 6.6	+ 1.9	- 2.5	-5.1	- 6.5	+ 2.6	- 4.0	+ 7.7	8.7	8.7

Trials to Verify Setting No. 3

1	+0.1	-0.6	- 1.9	-5.8	- 2.7	+ 2.7	- 2.0	-5.2	- 2.8	+ 3.3	+ 3.3	- 0.8	+ 8.5	8.5	8.5
2	+ .5	-0.8	- 6.9	-7.8	- 8.4	+ 1.2	- 7.4	-7.0	- 8.9	+ 2.0	+ 2.0	- 1.5	+ 9.0	10.2	11.0
3	+ .5	-0.1	- 2.8	-7.2	- 2.5	+ 3.5	- 3.3	-7.1	- 3.0	+ 3.6	+ 3.6	+ 0.3	+10.7	10.7	10.7
Average														9.8	10.1

Rifleman: Keele

1	1	-0.9	-1.7	0.0	+4.7	+ 1.7	+10.2	+ 0.9	+6.4	+ 2.6	+11.9	+ 1.7	+ 5.5	12.3	12.3
2	2	- .6	-2.2	+11.6	+3.6	+21.7	+ 6.8	+12.2	+5.8	+22.3	+ 9.0	+10.1	+ 3.2	24.1	24.1
3	3	+ .3	-2.2	- 0.9	+1.6	+ 2.6	+ 7.5	- 1.2	+3.8	+ 2.3	+ 9.7	+ 3.5	+ 5.9	10.0	10.0
4	4	+ .3	-1.4	+ 3.0	-7.1	+ 5.6	- 3.1	+ 2.7	-5.7	+ 5.3	- 1.7	+ 2.6	+ 4.0	6.3	6.4
Repeat	1	+ .4	-1.0	- 0.6	-2.0	- 1.8	+ 8.0	- 1.0	-1.0	- 2.2	+ 9.0	- 1.2	+10.0	10.1	10.1
Repeat	4	0.0	-1.7	+12.6	-7.1	+23.6	- 5.4	+12.6	-5.4	+23.6	- 3.7	+11.0	+ 1.7	23.9	23.9
Repeat	4	- .5	-1.5	+13.6	+0.3	+30.3	+ 2.1	+14.1	+1.8	+30.8	+ 3.6	+16.7	+ 1.8	31.1	31.1
Repeat	1	+ .2	-2.2	- 0.5	-4.4	+ 7.3	+ 2.1	- 0.7	-2.2	+ 7.1	+ 4.3	+ 7.8	+ 6.5	10.2	10.2
Average														10.0	10.0

Trials to Verify Setting No. 1

1	-0.9	-1.4	+ 5.3	-2.5	+ 9.0	- 2.5	+ 6.2	-1.1	+ 9.9	- 1.1	+ 3.7	- 0.0	10.0	10.0	10.0
2	+ .2	-1.7	+ 7.6	-3.2	+ 8.9	- 3.8	+ 7.4	-1.5	+ 8.7	- 2.1	+ 1.3	- 0.6	9.0	9.0	9.0
3	+ .1	-1.9	+ 5.7	-5.7	+ 3.4	- 7.0	+ 5.6	-3.8	+ 3.3	- 5.1	- 2.3	- 1.3	6.7	6.7	6.7
Average														8.6	8.6

Setting No.	Trial No.	Flat No.																Extreme Spread
		1		2		3		4		5		6		7		8		
		A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	

Trials to Determine Best Setting for Test III, Phase I

Fired in 3-round bursts from the prone position.

Rifleman: Connolly

	1	1	0	0	0	0	0	X	X	X	X	0	X	0	0	X	0	0	12.5
Repeat	1	2	0	0	0	0	0	X	X	X	X	0	X	0	0	X	0	0	11.4
	2	3	0	0	0	0	0	X	X	X	X	0	0	X	0	X	0	0	8.3
Repeat	2	4	0	0	0	0	0	X	X	X	X	0	0	X	0	X	0	0	9.2
	3	5	0	0	0	0	0	X	X	X	X	0	0	X	X	0	0	0	10.5
	4	6	0	0	0	0	0	X	X	X	0	X	0	X	X	0	0	0	14.8
	5	7	0	0	0	0	0	X	0	X	X	0	0	X	X	0	0	0	8.8
Repeat	5	8	0	0	0	0	0	X	0	X	X	0	0	X	X	0	0	0	7.8
	6	9	0	0	0	0	0	X	0	X	X	X	0	X	X	0	0	0	10.9
Repeat	6	10	0	0	0	0	0	X	0	X	X	X	0	X	X	0	0	0	8.2
	7	11	0	0	0	0	0	X	X	0	X	X	0	X	X	0	0	0	10.0
	8	12	0	0	0	0	X	0	X	0	X	X	0	X	0	0	0	0	18.7

Trials to Verify Setting No. 5

	1	0	0	0	0	0	X	0	X	X	0	0	X	X	0	0	0	12.7
	2	0	0	0	0	0	X	0	X	X	0	0	X	X	0	0	0	15.5
	3	0	0	0	0	0	X	0	X	X	0	0	X	X	0	0	0	17.0

Trials to Determine New Setting

	9	13	0	0	0	0	0	X	0	X	0	X	0	X	X	0	0	0	11.0
	10	14	0	0	0	0	0	X	X	0	0	X	0	X	X	0	0	0	10.0
Repeat	10	15	0	0	0	0	0	X	X	0	0	X	0	X	X	0	0	0	7.1

Trials to Verify Setting No. 10

	1	0	0	0	0	0	X	X	0	0	X	0	X	X	0	0	0	8.2
	2	0	0	0	0	0	X	X	0	0	X	0	X	X	0	0	0	11.6
	3	0	0	0	0	0	X	X	0	0	X	0	X	X	0	0	0	7.5

Setting No.	Distance from Index Point						Distance between Shot Holes						Extreme Spread	Extreme Diameter
	1st Round		2nd Round		3rd Round		1 to 2		1 to 3		2 to 3			
	Hor	Vert	Hor	Vert	Hor	Vert	Hor	Vert	Hor	Vert	Hor	Vert		

## Trials to Determine Best Setting for Test III, Phase I

Fired in 3-round bursts from the prone position

Rifleman: Connolly

1	-0.2	-1.3	-0.7	-2.3	+4.8	+8.8	-0.5	-1.0	+5.0	+10.1	+5.5	+11.1	12.5	12.5
Repeat 1	+0.1	-1.5	-2.3	-2.4	+3.4	+7.4	-2.4	-0.9	+3.3	+8.9	+5.7	+9.8	11.4	11.4
2	-0.3	-1.2	-3.4	-8.9	-1.7	-2.1	-3.1	-7.7	-1.4	-0.9	+1.7	+6.8	8.3	8.3
Repeat 2	+0.3	-0.8	-2.9	-8.0	+0.6	+0.5	-3.2	-7.2	+0.3	+1.3	+3.5	+8.5	9.2	9.2
3	0.0	-1.5	+0.5	-3.3	+5.0	+6.2	+0.5	-1.8	+5.0	-7.7	+4.5	+9.5	10.5	10.5
4	-0.1	-1.7	+1.0	-14.9	+6.9	-14.7	+1.1	-13.2	+7.0	-13.0	+5.9	+0.2	14.8	14.8
5	0.0	-1.0	-3.5	-5.8	0.0	+2.3	-3.5	-4.8	0.0	+3.3	+3.5	+8.1	8.8	8.8
Repeat 5	0.0	-1.0	-2.7	-4.1	-1.7	+3.7	-2.7	-3.1	-1.7	+4.7	+1.0	+7.8	7.8	7.8
6	+0.3	-0.8	-1.1	-8.6	0.0	+2.3	-1.4	-7.8	-0.3	+3.1	+1.1	+10.9	10.9	10.9
Repeat 6	-0.6	-1.5	+0.4	-7.8	+5.6	-1.4	+1.0	-6.3	+6.2	+0.1	+5.2	+6.4	8.2	8.2
7	+0.1	-0.7	-8.0	-4.0	-7.8	+5.1	-8.1	-4.2	-7.9	+5.8	+0.2	+10.0	11.2	11.2
8	+0.1	-1.4	-4.2	+4.8	-6.2	+16.2	-4.3	+6.2	-6.3	+17.6	-2.0	+11.4	18.7	18.7

## Trials to Verify Setting No. 5

1	+0.1	-0.7	+2.0	+4.1	+12.6	+17.1	+1.9	+4.8	+12.5	+17.8	+10.6	+13.0	12.7	12.7
2	0.0	-0.8	0.0	+0.8	+3.9	+14.2	0.0	+1.6	+3.9	+15.0	+3.9	+13.4	15.5	15.5
3	+0.2	-0.2	+3.4	+2.6	+12.0	+12.2	+3.2	+2.8	+11.8	+12.4	+8.6	+9.6	17.0	17.0
											Average		15.1	15.1

## Redetermination of Setting

9	-0.2	-0.5	+1.6	-11.3	+9.7	-5.1	+1.8	-10.8	+9.9	-4.6	+8.1	+6.2	11.0	12.4
10	-0.2	-0.7	-3.9	-3.6	-5.0	+6.3	-3.7	-2.9	-4.8	+7.0	-1.1	+9.9	10.0	10.0
Repeat 10	+0.6	-0.2	-3.7	-6.0	-3.1	+1.1	-4.3	-5.8	-3.7	+1.3	+0.6	+7.1	7.4	7.4

## Trial to Verify Setting No. 10

1	-0.1	-0.6	-2.6	-0.5	-2.5	+7.2	-2.5	+0.1	-2.4	+7.8	+0.1	+7.7	8.2	8.2
2	+0.2	-0.9	-7.1	-1.9	-7.7	+7.4	-7.3	-1.0	-7.9	+8.3	-0.6	+9.3	11.6	11.6
3	0.0	-0.6	-2.9	-3.6	+2.9	+1.2	-2.9	-3.0	+2.9	+1.8	+5.8	+4.8	7.5	7.5
											Average		9.1	9.1

Burst No.	Distance from Index Point						Distance between Shot Holes						Extreme Spread	Extreme Diameter
	1st Round		2nd Round		3rd Round		1 to 2		1 to 3		2 to 3			
	Hor	Vert	Hor	Vert	Hor	Vert	Hor	Vert	Hor	Vert	Hor	Vert		

Test of Selected Setting for Test III, Phase I

Fired in 3-round bursts from the prone position

Rifleman: Crowther

1	-0.8	-0.9	+0.8	-2.2	+1.4	+2.9	+1.6	-1.3	+2.2	+3.8	+0.6	+5.1	5.2
2	-2.0	-1.5	-0.3	-4.4	-14.7	+0.1	+1.7	-2.9	-12.7	+1.6	-14.4	+4.5	15.0
3	-1.2	-2.3	+0.9	+0.6	-5.4	+13.6	+2.1	+2.9	-4.2	+15.9	-6.3	+13.0	16.5
4	-0.2	-1.8	+0.6	-1.2	-0.1	+3.2	+0.8	+0.6	+0.1	+5.0	-0.7	+4.4	5.0
5	+0.5	-1.7	+3.2	-6.0	-0.3	-7.2	+2.7	-4.3	-0.8	-5.5	-3.5	-1.2	5.5
6	-0.4	-2.0	-2.2	+5.7	-1.3	+12.4	-1.8	+7.7	-0.9	+14.4	+0.9	+6.7	14.5
7	+0.2	-1.4	+1.3	+0.2	-7.3	+12.8	+1.1	+1.6	-7.5	+14.2	-8.6	+12.6	16.1
8	+0.1	-2.3	+5.5	-1.8	+0.6	-0.8	+5.4	+0.5	+0.5	+1.5	-4.9	+1.0	5.4
9	-0.6	-1.7	-0.9	-0.5	+1.9	+6.3	-0.3	+1.2	-2.5	+8.0	+2.8	+6.8	8.4
10	+0.5	-1.9	+0.9	-0.0	+4.1	+5.1	+0.4	+1.9	+3.6	+7.0	+3.2	+5.1	7.9
Average	-0.4	-1.8	+1.0	-1.0	-2.1	+4.8	+1.4	+0.8	-1.7	+6.6	-3.1	+5.8	10.0

Rifleman: Eller

1	+0.1	-0.1	-1.4	+3.0	+8.4	+6.7	-1.5	+3.1	+8.3	+6.8	+9.8	+3.7	10.7
2	+1.4	-0.9	+2.3	-0.5	+0.5	+6.1	+0.9	+0.4	-0.9	+7.0	-1.8	+6.6	7.1
3	+0.6	-0.8	+2.4	-1.4	+4.4	0.0	+1.8	-0.6	+3.8	+0.8	+2.0	+1.4	3.9
4	+0.7	-0.4	+2.2	-3.7	-2.7	-0.5	+1.5	-3.3	-3.4	-0.1	-4.9	+3.2	5.8
5	+1.6	+1.6	-0.9	-0.3	-2.7	+3.2	-2.5	-1.9	-4.3	+1.6	-1.8	+3.5	4.6
6	+0.7	0.0	-2.7	+1.0	-3.3	+6.7	-3.4	+1.0	-4.0	+6.7	-0.6	+5.7	7.8
7	+0.4	0.0	+0.3	-1.9	+2.8	-0.4	-0.1	-1.9	+2.4	-0.4	+2.5	+1.5	2.9
8	+0.1	-0.2	-1.5	-0.6	+2.6	+5.7	-1.6	-0.4	+2.5	+5.9	+4.1	+6.3	7.5
9	+1.1	-1.4	+0.8	-8.7	+4.1	-1.4	-0.3	-7.3	+3.0	0.0	+3.3	+7.3	8.0
10	+1.2	+0.1	+3.1	-4.8	+6.4	-4.9	+1.9	-4.9	+5.2	-5.0	+3.3	-0.1	7.2
Average	+0.8	-0.2	+0.5	-1.8	+2.1	+2.1	-0.3	-1.6	+1.3	+2.3	+1.6	+3.9	6.6

Burst No.	Distance from Index Point						Distance between Shot Holes						Extreme Spread	Extreme Diameter
	1st Round		2nd Round		3rd Round		1 to 2		1 to 3		2 to 3			
	Hor	Vert	Hor	Vert	Hor	Vert	Hor	Vert	Hor	Vert	Hor	Vert		

Test of Selected Setting for Test III, Phase I

Fired in 3-round bursts from the prone position

Rifleman: Staley

1	+0.8	-0.5	-4.3	-8.0	-4.0	+1.1	-5.1	-7.5	-4.8	+1.6	+0.3	+9.1	9.0	9.6
2	+0.5	-0.6	-1.3	-11.1	+0.6	-2.2	-1.8	-10.5	+0.1	-1.6	+1.9	+8.9	10.7	10.7
3	-0.1	-0.5	-3.1	-7.4	-2.2	+4.1	-3.0	-6.9	-2.1	+4.6	+0.9	+11.5	12.0	12.0
4	+0.3	-0.6	-4.8	-7.9	-4.7	+2.7	-5.1	-7.3	-5.0	+3.3	+0.1	+10.6	10.6	10.6
5	-0.5	+0.1	-3.7	-9.5	-3.7	-3.1	-3.2	-9.6	-3.2	-3.2	0.0	+6.4	10.1	10.1
6	+0.5	-0.9	-2.4	-10.8	-2.2	-0.6	-2.9	-9.9	-2.7	+0.3	+0.2	+10.2	10.3	10.3
7	-0.3	-0.1	-2.0	-4.4	-1.5	+4.5	-1.7	-4.3	-1.2	+4.6	+0.5	+8.9	8.9	8.9
8	-0.4	-0.3	-3.7	-6.7	-5.0	+3.0	-3.3	-6.4	-4.6	+3.3	-1.3	+9.7	9.8	9.8
9	+0.4	-0.3	-5.5	-7.2	-9.3	+0.8	-5.9	-6.9	-9.7	+1.1	-3.8	+8.0	9.8	10.7
10	+0.3	-0.3	-9.2	-11.6	-15.6	-4.4	-9.5	-11.3	-15.9	-4.1	-6.4	+7.2	16.4	16.6
Average	+0.2	-0.4	-4.0	-8.5	-4.8	+0.6	-4.2	-8.1	-4.9	+1.0	-0.8	+9.1	10.8	10.9

Rifleman: Keele

1	-0.1	-1.5	-2.7	-10.7	-4.1	-7.8	-2.6	-9.2	-4.0	-6.3	-1.4	+2.9	9.6	9.6
2	+0.2	-2.8	-3.6	-11.3	-0.7	-7.9	-3.8	-8.5	-0.9	-5.1	+2.9	+3.4	9.3	9.3
3	-0.6	-2.2	-6.1	-7.1	-2.7	+0.8	-5.5	-4.9	-2.1	+3.0	+3.4	+7.9	8.6	8.6
4	+0.1	-3.0	-6.1	-10.2	-8.6	-2.9	-6.2	-7.2	-8.7	+0.1	-2.5	+7.3	9.5	9.5
5	+0.4	-2.1	-4.0	-5.9	-2.1	+3.4	-4.4	-3.8	-2.5	+5.5	+1.9	+9.3	9.5	10.4
6	+0.6	-2.6	-0.4	-3.0	+1.8	+5.8	-1.0	-0.4	+1.2	+8.4	+2.2	+8.8	8.9	8.9
7	+0.2	-2.0	-5.3	-11.7	-3.6	-5.4	-5.5	-9.7	-3.8	-3.4	+1.7	+6.3	11.1	11.1
8	-0.5	-2.1	-1.7	-3.4	-1.2	+4.4	-1.2	-1.3	-0.7	+6.5	+0.5	+7.8	7.9	7.9
9	0.0	-2.2	-3.7	-7.6	-3.7	+0.5	-3.7	-5.4	-3.7	+2.7	0.0	+8.1	8.0	8.0
10	+0.1	-3.0	-4.7	-8.5	-0.8	+1.7	-4.8	-5.5	-0.9	+4.7	+3.9	+10.2	10.9	10.9
Average	0.0	-2.3	-3.8	-7.9	-2.6	-0.7	-3.9	-5.6	-2.6	+1.6	+1.2	+7.2	9.3	9.4

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Burst No.	Distance from Index Point				Distance between Shot Holes				Extreme Diameter	Extreme Spread				
	1st Round		2nd Round		3rd Round		1 to 2				1 to 3		2 to 3	
	Hor	Vert	Hor	Vert	Hor	Vert	Hor	Vert			Hor	Vert	Hor	Vert

Test of Selected Setting for Test III, Phase I

Fired in 3-round bursts from the prone position

Rifleman: Connolly

1	+0.2	-0.2	-4.0	-4.1	-2.8	+5.6	-4.2	-3.9	-3.0	+5.8	+1.2	+9.7	9.8
2	-0.1	+0.2	-6.0	-6.1	-8.0	+2.1	-5.9	-6.3	-7.9	+1.9	-2.0	+8.2	9.7
3	+0.2	-0.5	-3.7	-3.6	-5.3	+6.7	-3.9	-3.1	-5.5	+7.2	-1.6	+10.3	10.5
4	0.0	-1.0	-5.3	-5.6	-6.3	+1.4	-5.3	-4.6	-6.3	+2.4	-1.0	+7.0	8.1
5	+0.2	-0.6	-7.2	-7.6	-8.9	+0.9	-7.4	-7.0	-9.1	+1.5	-1.7	+8.5	10.9
6	-0.1	-0.6	-5.9	-5.6	-4.6	+6.0	-5.8	-5.0	-4.5	+6.6	+1.3	+11.6	11.6
7	0.0	-0.7	-6.3	-4.5	-7.5	+5.9	-6.3	-3.8	-7.5	+6.6	-1.3	+10.4	10.9
8	-0.1	-0.7	-5.8	-9.1	-6.1	+1.6	-5.7	-8.4	-6.0	+2.3	-0.3	+10.7	11.0
9	+0.2	-0.2	-7.6	-7.2	-7.3	+2.6	-7.8	-7.0	-7.5	+2.8	+0.3	+9.8	11.1
10	+0.1	-1.1	-4.1	-0.9	-3.7	+11.6	-4.2	+0.2	-3.8	+12.7	+0.4	+12.5	13.3
Average	+0.1	-0.5	-5.6	-5.4	-6.0	+4.4	-5.6	-4.9	-6.1	+5.0	-0.5	+9.8	10.7

Burst No.	Distance from Index Point						Distance between Shot Holes						Extreme Spread	Extreme Diameter
	1st Round		2nd Round		3rd Round		1 to 2		1 to 3		2 to 3			
	Hor	Vert	Hor	Vert	Hor	Vert	Hor	Vert	Hor	Vert	Hor	Vert		

Test of Selected Setting for Test III, Phase I

Fired in 3-round bursts from the standing position

Rifleman: Crowther

1	-0.8	-0.7	-0.7	-14.2	+4.4	-20.1	+0.1	-13.5	+5.2	-19.4	+5.1	-5.9	20.0	20.1
2	-0.5	-1.9	+3.3	-16.5	+10.5	-36.0	+3.8	-14.6	+11.0	-34.1	+7.2	-19.5	35.8	35.8
3	-0.8	+0.4	-6.4	-14.0	+7.6	-6.2	-5.6	-14.4	+8.4	-6.6	+14.0	+7.8	15.4	16.8
4	0.0	-0.5	-3.3	-10.0	-4.9	-22.4	-3.3	-9.5	-4.9	-21.9	-1.6	-12.4	22.5	22.5
5	-0.1	-0.1	-4.8	-16.1	-10.4	-4.4	-4.7	-16.0	-10.3	-4.3	-5.6	+11.7	16.7	16.7
6	0.0	-1.3	-8.5	-12.9	+2.8	-28.5	-8.5	-11.6	+2.8	-27.2	+11.3	-15.6	27.4	27.4
7	+0.2	-2.0	-3.0	-14.1	-6.2	-13.2	-3.2	-12.1	-6.4	-11.2	-3.2	+0.9	12.9	12.9
8	-0.7	-1.0	-3.0	-11.9	-3.6	-4.4	-2.3	-10.9	-2.9	-3.4	-0.6	+7.5	11.2	11.2
9	0.0	-1.3	-2.1	-12.5	+3.0	-15.9	-2.1	-11.2	+3.0	-14.6	+5.1	-3.4	15.9	15.9
10	-0.3	-2.5	-3.7	-10.7	-7.4	-0.3	-3.4	-8.2	-7.1	+2.2	-3.7	+10.4	11.0	11.2
Average	-0.3	-1.1	-3.2	-13.3	-0.4	-15.1	-2.9	-12.2	-0.1	-14.0	+2.8	-1.8	18.9	19.1

Rifleman: Eller

1	+2.6	+2.3	+4.9	-19.5	+1.0	-39.2	+2.3	-21.8	-1.6	-41.5	-3.9	-19.7	41.5	41.5
2	-0.6	+0.5	+0.7	-17.5	+3.7	-32.0	+1.3	-18.0	+4.3	-32.5	+3.0	-14.5	32.9	32.9
3	+0.6	+0.3	+7.1	-16.0	+13.8	-29.1	+6.5	-16.3	+13.2	-29.4	+6.7	-13.1	32.2	32.2
4	-2.1	+1.8	-0.3	-17.0	+3.5	-31.4	+1.8	-18.8	+5.6	-33.2	+3.8	-14.4	33.7	33.7
5	+0.8	+0.9	+2.9	-11.1	+13.0	-16.9	+2.1	-12.0	+12.2	-17.8	+10.1	-5.8	21.6	21.6
6	-0.8	+2.2	+2.9	-12.5	+3.5	-21.5	+3.7	-14.7	+4.3	-23.7	+0.6	-9.0	24.1	24.1
7	-0.1	+1.5	+3.0	-16.2	+8.1	-31.7	+3.1	-17.7	+8.2	-33.2	+5.1	-15.5	34.3	34.3
8	-0.5	+1.5	+2.5	-14.3	+9.1	-26.0	+3.0	-15.8	+9.6	-27.5	+6.6	-11.7	29.2	29.2
9	+0.2	+1.9	+5.8	-14.7	+11.0	-26.1	+5.6	-16.6	+10.8	-28.0	+5.2	-11.4	30.1	30.1
10	0.0	+0.8	+8.4	-17.0	+16.4	-29.5	+8.4	-17.8	+16.4	-30.3	+8.0	-12.5	34.5	34.5
Average	0.0	+1.4	+3.8	-15.6	+8.3	-28.3	+3.8	-17.0	+8.3	-29.7	+4.5	-12.8	31.4	31.4

Burst No.	Distance from Index Point				Distance between Shot Holes						Extreme Spread	Extreme Diameter		
	1st Round		2nd Round		3rd Round		1 to 2		1 to 3				2 to 3	
	Hor	Vert	Hor	Vert	Hor	Vert	Hor	Vert	Hor	Vert			Hor	Vert

Test of Selected Setting for Test III, Phase I

Fired 3-round bursts from the standing position

Rifleman: Staley

1	-0.1	-1.3	-7.1	-17.8	+3.5	-31.5	-7.0	-16.5	+3.6	-30.2	+10.6	-13.7	30.4
2	+0.3	+0.3	-5.2	-13.6	+7.4	-20.9	-5.5	-13.9	+7.1	-21.2	+12.6	-7.3	22.4
3	-0.4	-0.7	-7.1	-16.9	+5.7	-25.1	-6.7	-16.2	+6.1	-24.4	+12.8	-8.2	25.1
4	-0.5	-0.2	-1.8	-14.0	+5.3	-29.2	-1.3	-13.8	+5.8	-29.0	+7.1	-15.2	29.6
5	-0.4	-0.4	-5.1	-15.6	+17.8	-22.4	-4.7	-15.2	+18.2	-22.0	+22.9	-6.8	28.6
6	-0.4	+0.2	-0.1	-12.4	+18.6	-18.8	+0.3	-12.6	+19.0	-19.0	+18.7	-6.4	26.8
7	+0.2	-0.9	-5.6	-15.3	+10.0	-20.2	-5.8	-14.4	+9.8	-19.3	+15.6	-4.9	21.7
8	-0.4	-1.0	-1.8	-17.0	+9.1	-22.2	-1.4	-16.0	+9.5	-21.2	+10.9	-5.2	23.3
9	+0.1	+0.1	-2.6	-14.9	+17.3	-24.3	-2.7	-15.0	+17.2	-24.4	+19.9	-9.4	29.8
10	0.0	+0.1	-0.6	-14.7	+12.9	-19.1	-0.6	-14.8	+12.9	-19.2	+13.5	-4.4	23.2
Average	-0.2	-0.4	-3.7	-15.2	+10.8	-23.4	-3.5	-14.8	+10.9	-23.0	+14.5	-8.2	26.1

Rifleman: Keele

1	+0.4	-1.3	-2.8	-17.6	+7.0	-28.0	-3.2	-16.3	+6.6	-26.7	+9.8	-10.4	27.6
2	-0.3	-3.2	-2.7	-19.1	+11.2	-35.1	-2.4	-15.9	+11.5	-31.9	+13.9	-16.0	34.0
3	+0.3	-2.4	+1.2	-16.0	+15.1	-27.0	+0.9	-13.6	+14.8	-24.6	+13.9	-11.0	28.7
4	-1.2	-2.2	+0.4	-16.9	+14.2	-26.2	+1.6	-14.7	+15.4	-24.0	+13.8	-9.3	28.6
5	-0.3	-1.8	-1.6	-15.3	+11.7	-23.4	-1.3	-13.5	+12.0	-21.6	+13.3	-8.1	24.6
6	-0.7	-0.2	-1.9	-17.4	+13.1	-32.3	-1.2	-17.2	+13.8	-32.1	+15.0	-14.9	34.9
7	-1.0	+0.4	+0.1	-14.5	+15.0	-23.0	+1.1	-14.9	+16.0	-23.4	+14.9	-8.5	28.4
8	-1.0	-2.2	-1.4	-18.1	+15.0	-28.4	-0.4	-15.9	+16.0	-26.2	+16.4	-10.3	30.8
9	-0.8	-1.5	-1.5	-14.4	+13.3	-25.2	-0.7	-12.9	+14.1	-23.7	+14.8	-10.8	27.6
10	-2.4	-2.0	-4.0	-19.2	+7.4	-32.7	-1.6	-17.2	+9.8	-30.7	+11.4	-13.5	32.2
Average	-0.7	-1.6	-1.4	-16.8	+12.3	-28.1	-0.7	-15.2	+13.0	-26.5	+13.7	-11.3	29.7

Burst No.	Distance from Index Point						Distance between Shot Holes						Extreme Spread	Extreme Diameter
	1st Round		2nd Round		3rd Round		1 to 2		1 to 3		2 to 3			
	Hor	Vert	Hor	Vert	Hor	Vert	Hor	Vert	Hor	Vert	Hor	Vert		
1	+0.7	-0.5	-3.2	+6.9	+3.4	+17.1	-3.9	+7.4	+2.7	+17.6	+6.6	+10.2	17.8	17.8
2	+0.6	-0.3	-0.9	+6.1	+18.3	+22.6	-1.5	+6.4	+17.7	+22.9	+19.2	+16.5	29.0	29.0
3	+0.1	-0.8	-1.7	+2.3	+10.1	+5.2	-1.8	+3.1	+10.0	+6.0	+11.8	+2.9	12.2	12.2
4	-0.7	-0.1	-4.7	+2.7	+8.0	+10.3	-4.0	+2.8	+8.7	+10.4	+12.7	+7.6	14.8	14.8
5	-0.1	-1.0	-3.5	+3.4	+7.3	+7.1	-3.4	+4.4	+7.4	+8.1	+10.8	+3.7	11.4	11.6
6	+0.1	-1.9	-6.3	-2.1	0.0	-1.3	-6.4	-0.2	-0.1	+0.6	+6.3	+0.8	6.4	6.4
7	-0.8	-0.9	-4.4	-1.5	+8.3	+1.0	-3.6	-0.6	+9.1	+1.9	+12.7	+2.5	12.9	12.9
8	-0.5	-0.1	-3.2	+2.1	+9.0	+1.8	-2.7	+2.2	+9.5	+1.9	+12.2	-0.3	12.2	12.2
9	-0.9	+0.5	-3.5	+2.4	+0.9	-5.3	-2.6	+1.9	+1.8	-5.8	+4.4	-7.7	8.9	8.9
10	-1.1	-0.9	-3.6	+1.0	+5.1	+2.2	-2.5	+1.9	+6.2	+3.1	+8.7	+1.2	8.8	8.8
Average	-0.3	-0.6	-3.5	+2.3	+7.0	+6.1	-3.2	+2.9	+7.3	+6.7	+10.5	+3.7	13.4	13.4

Test of Selected Setting for Test III, Phase I

Fired in 3-round bursts from the standing position

Rifleman: Connolly

Setting No.	Burst No.	Flat No.																Extreme Spread
		1		2		3		4		5		6		7		8		
		A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	

Trials to Determine Best Setting for Test III, Phase II

Fired in 2-round bursts from the prone position

Rifleman: Crowthers

1	1	0	0	0	0	0	0	X	X	X	X	X	X	0	X	0	0	5.4
2	2	0	0	0	0	0	0	X	X	X	X	X	X	0	X	0	0	1.0
Repeat 2	3	0	0	0	0	0	0	X	X	X	X	X	X	0	X	0	0	1.2

Trials to Verify Setting No. 2

1	0	0	0	0	0	0	0	X	X	X	X	X	X	0	X	0	0	1.7
2	0	0	0	0	0	0	0	X	X	X	X	X	X	0	X	0	0	6.2
3	0	0	0	0	0	0	0	X	X	X	X	X	X	0	X	0	0	3.7

Rifleman: Eller

1	1	0	0	0	0	X	0	X	X	X	X	X	X	0	X	0	0	17.1
2	2	0	0	0	0	0	0	X	X	X	X	X	X	0	X	0	0	9.2
3	3	0	0	0	0	0	0	X	X	X	X	X	X	0	0	0	0	9.3
4	4	0	0	0	0	0	0	X	0	X	X	X	X	0	0	0	0	5.1
5	5	0	0	0	0	0	0	0	X	0	X	X	X	0	0	0	0	6.4
6	6	0	0	0	0	0	0	X	X	X	0	X	X	0	0	0	0	10.7
Repeat 4	7	0	0	0	0	0	0	X	0	X	X	X	X	0	0	0	0	7.3
Repeat 2	8	0	0	0	0	0	0	X	X	X	X	X	X	0	X	0	0	5.9
7	9	0	0	0	0	0	0	X	X	0	X	X	X	0	X	0	0	12.0
Repeat 2	10	0	0	0	0	0	0	X	X	X	X	X	X	0	X	0	0	3.5

Trials to Verify Setting No. 2

1	0	0	0	0	0	0	0	X	X	X	X	X	X	0	X	0	0	2.4
2	0	0	0	0	0	0	0	X	X	X	X	X	X	0	X	0	0	9.8
3	0	0	0	0	0	0	0	X	X	X	X	X	X	0	X	0	0	3.5

<u>Setting No.</u>	<u>Burst No.</u>	<u>Distance from Index Point</u>				<u>Distance between Shot Holes</u>		<u>Extreme Spread</u>
		<u>1st Round</u>		<u>2nd Round</u>		<u>1 to 2</u>		
		<u>Hor</u>	<u>Vert</u>	<u>Hor</u>	<u>Vert</u>	<u>Hor</u>	<u>Vert</u>	

## Trials to Determine Best Setting for Test III, Phase II

Fired in 2-round bursts from the prone position

Rifleman: Crowther:

1	1	-1.8	-0.9	+ 1.2	- 5.4	+3.0	- 4.5	5.4
2	2	0.0	-1.8	- 0.8	- 1.2	-0.8	+ 0.6	1.0
Repeat 2	3	-0.5	-2.6	- 0.9	- 3.8	-0.4	- 1.2	1.2

## Trials to Verify Setting No. 2

1	+0.2	-1.2	+ 1.2	+ 0.3	+1.0	+ 1.5	1.7
2	-0.7	-1.5	+ 2.2	+ 3.9	+2.9	+ 5.4	6.2
3	-0.1	-0.7	- 3.7	+ 0.2	-3.6	+ 0.9	3.7
					Average		3.9

Rifleman: Eller

1	1	+0.6	+0.6	+14.6	- 9.2	+14.0	- 9.8	17.1
2	2	+1.0	+0.3	+ 1.6	- 8.8	+ 0.6	- 9.1	9.2
3	3	+0.6	+0.1	+ 7.9	- 5.8	+ 7.3	- 5.9	9.3
4	4	+0.6	+0.2	- 3.3	+ 3.5	- 3.9	+ 3.3	5.1
5	5	+0.1	-0.2	+ 3.1	+ 5.4	+ 3.0	+ 5.6	6.4
6	6	+0.1	-0.7	+ 4.2	+ 9.1	+ 4.1	+ 9.8	10.7
Repeat 4	7	+1.1	-0.6	+ 3.2	+ 6.4	+ 2.1	+ 7.0	7.3
Repeat 2	8	+1.2	-1.5	+ 2.5	- 7.2	+ 1.3	- 5.7	5.9
7	9	+1.9	-0.2	+ 8.2	+10.0	+ 6.3	+10.2	12.0
Repeat 2	10	+1.2	+0.5	+ 3.8	- 1.9	+ 2.6	- 2.4	3.5

## Trials to Verify Setting No. 2

1	0.0	-0.9	+2.3	- 1.5	+ 2.3	- 0.6	2.4
2	+1.2	+0.3	+6.9	- 7.6	+ 5.7	- 7.9	9.8
3	+1.0	+0.5	-0.3	- 2.7	- 1.3	- 3.2	3.5
					Average		5.2

Setting No.	Trial No.	Flat No.																Extreme Spread
		1		2		3		4		5		6		7		8		
		A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	

Trials to Determine Best Setting for Test III, Phase II

Fired in 2-round bursts from the prone position

Rifleman: Staley

	1	1	0	0	0	0	X	0	X	X	X	X	X	0	X	0	0	3.0
	2	2	0	0	0	0	0	0	X	X	X	X	X	0	X	0	0	7.0
	3	3	0	0	0	0	0	0	X	X	X	X	X	0	0	0	0	3.7
	4	4	0	0	0	0	0	0	X	0	X	X	X	0	0	0	0	6.8
	5	5	0	0	0	0	0	0	0	X	0	X	X	0	0	0	0	3.0
Repeat	5	6	0	0	0	0	0	0	0	X	0	X	X	0	0	0	0	4.6
	6	7	0	0	0	0	0	0	X	X	X	0	X	X	0	0	0	1.3
Repeat	6	8	0	0	0	0	0	0	X	X	X	0	X	X	0	0	0	7.1
Repeat	6	9	0	0	0	0	0	0	X	X	X	0	X	X	0	0	0	5.6
Repeat	3	10	0	0	0	0	0	0	X	X	X	X	X	0	0	0	0	4.4
	7	11	0	0	0	0	0	0	0	X	X	X	X	0	0	0	0	5.5
Repeat	5	12	0	0	0	0	0	0	0	X	0	X	X	0	0	0	0	4.2
Repeat	1	13	0	0	0	0	X	0	X	X	X	X	X	0	X	0	0	10.6
Repeat	5	14	0	0	0	0	0	0	0	X	0	X	X	0	0	0	0	7.7
Repeat	2	15	0	0	0	0	0	0	X	X	X	X	X	0	X	0	0	5.9

Trials to Verify Setting No. 3

	1	0	0	0	0	0	0	X	X	X	X	X	X	0	0	0	0	3.1
	2	0	0	0	0	0	0	X	X	X	X	X	X	0	0	0	0	7.0
	3	0	0	0	0	0	0	X	X	X	X	X	X	0	0	0	0	13.8

Development of Different Setting

	8	16	0	0	0	0	0	0	X	X	0	X	X	X	0	0	0	0	4.8
	8	17	0	0	0	0	0	0	X	X	0	X	X	X	0	0	0	0	6.7
Repeat	7	18	0	0	0	0	0	0	0	X	X	X	X	0	0	0	0	3.4	

Trials to Verify Setting No. 7

	1	0	0	0	0	0	0	0	X	X	X	X	X	0	0	0	0	1.7
	2	0	0	0	0	0	0	0	X	X	X	X	X	0	0	0	0	4.1
	3	0	0	0	0	0	0	0	X	X	X	X	X	0	0	0	0	3.8

Setting Used	Burst No.	Distance from Index Point				Distance between Shot Holes		Extreme Spread
		1st Round		2nd Round		1 to 2		
		Hor	Vert	Hor	Vert	Hor	Vert	

Trials to Determine Best Setting for Test III, Phase II

Fired in 2-round bursts from the prone position.

Rifleman: Staley

	1	1	-0.1	-0.5	+2.7	- 1.4	+2.8	- 0.9	3.0
	2	2	+0.4	-1.3	+1.9	- 8.1	+1.5	- 6.8	7.0
	3	3	+0.8	-0.5	+2.7	- 3.6	+1.9	- 3.1	3.7
	4	4	+0.8	-1.0	-1.3	- 7.5	-2.1	- 6.5	6.8
	5	5	+0.8	-0.7	-1.8	+ 0.7	-2.6	+ 1.4	3.0
Repeat	5	6	+0.4	-0.7	-3.2	+ 2.0	-3.6	+ 2.7	4.6
	6	7	+0.3	-0.9	+1.4	- 0.4	+1.1	+ 0.5	1.3
Repeat	6	8	+0.9	-0.8	+0.1	+ 6.3	-0.8	+ 7.1	7.1
Repeat	6	9	+0.4	-0.9	-1.2	+ 4.5	-1.6	+ 5.4	5.6
Repeat	3	10	+0.6	-1.1	+2.6	- 5.0	+2.0	- 3.9	4.4
	7	11	+0.4	-1.0	-4.1	- 4.2	-4.5	- 3.2	5.5
Repeat	5	12	+0.4	-1.1	-3.8	- 1.4	-4.2	- 0.3	4.2
Repeat	1	13	+0.6	-1.5	+0.4	-12.1	-0.2	-10.6	10.6
Repeat	5	14	+0.1	-0.9	-1.7	+ 6.6	-1.8	+ 7.5	7.7
Repeat	2	15	+0.3	-1.4	-4.5	- 4.8	-4.8	- 3.4	5.9

Trials to Verify Setting No. 3

	1	+0.7	-1.4	0.0	- 4.4	-0.7	- 3.0	3.1
	2	+0.6	-0.6	-0.7	- 7.5	-1.3	- 6.9	7.0
	3	+0.5	-1.1	-1.4	-14.8	-1.9	-13.7	13.8
							Average	8.0

Development of Different Setting

	8	16	+0.9	-1.2	+1.3	+ 3.6	+0.4	+ 4.8	4.8
	8	17	+0.4	-1.9	+2.8	+ 4.3	+2.4	+ 6.2	6.7
Repeat	7	18	-0.3	-1.3	-3.2	+ 0.5	-2.9	+ 1.8	3.4

Trials to Verify Setting No. 7

	1	+0.9	-0.9	+0.2	+ 0.7	-0.7	+ 1.6	1.7
	2	+0.9	-1.3	-2.7	+ 0.6	-3.6	+ 1.9	4.1
	3	+0.3	-1.2	-3.2	+ 0.2	-3.5	+ 1.4	3.8
							Average	3.2

Setting No.	Trials No.	Flat No.																Extreme Spread
		1		2		3		4		5		6		7		8		
		A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	

Trials to Determine Best Setting for Test III, Phase II

Fired in 2-round bursts from the prone position

Rifleman: Keele

	1	1	0	0	0	0	X	0	X	X	X	X	X	0	X	0	0	6.1
	2	2	0	0	0	0	0	0	X	X	X	X	X	0	X	0	0	7.1
	3	3	0	0	0	0	0	0	X	X	X	X	X	0	0	0	0	11.8
	4	4	0	0	0	0	0	0	X	0	X	X	X	0	0	0	0	8.2
	5	5	0	0	0	0	0	0	0	X	0	X	X	0	0	0	0	15.1
	6	6	0	0	0	0	0	0	X	X	X	0	X	X	0	0	0	13.3
Repeat	2	7	0	0	0	0	0	0	X	X	X	X	X	0	X	0	0	9.2
	7	8	0	0	0	0	0	0	X	X	X	X	X	X	X	0	0	13.2
	8	9	0	0	0	0	0	0	X	X	X	X	0	X	X	X	0	5.1
Repeat	1	10	0	0	0	0	X	0	X	X	X	X	X	0	X	0	0	10.9

Trials to Verify Setting No. 1

	1	0	0	0	0	X	0	X	X	X	X	X	0	X	0	0	7.7
	2	0	0	0	0	X	0	X	X	X	X	X	0	X	0	0	11.0
	3	0	0	0	0	X	0	X	X	X	X	X	0	X	0	0	4.8

Rifleman: Conolly

	1	1	0	0	0	0	X	0	X	X	X	X	X	0	X	0	0	
	2	2	0	0	0	0	X	0	X	X	X	0	X	X	0	X	0	15.1
	3	3	0	0	0	0	X	0	X	X	X	0	X	0	0	X	0	10.6
	4	4	0	0	0	0	X	0	X	X	X	0	X	0	X	0	0	4.2
	5	5	0	0	0	0	X	0	X	X	X	0	X	0	0	0	0	5.7
	6	6	0	0	0	0	X	0	X	X	0	X	X	0	0	0	0	4.7
Repeat	6	7	0	0	0	0	X	0	X	X	0	X	X	0	0	0	0	6.4
Repeat	3	8	0	0	0	0	X	0	X	X	X	0	X	0	0	X	0	5.5
	7	9	0	0	0	0	0	X	X	X	X	0	X	0	0	X	0	7.3
Repeat	7	10	0	0	0	0	0	X	X	X	X	0	X	0	0	X	0	3.8
Repeat	7	11	0	0	0	0	0	X	X	X	X	0	X	0	0	X	0	4.5

Trials to Verify Setting No. 7

	1	0	0	0	0	0	X	X	X	X	0	X	0	0	X	0	0	3.9
	2	0	0	0	0	0	X	X	X	X	0	X	0	0	X	0	0	2.6
	3	0	0	0	0	0	X	X	X	X	0	X	0	0	X	0	0	2.7

Setting No.	Burst No.	Distance from Index Point				Distance Between Shot Holes		Extreme Spread
		1st Round		2nd Round		1 to 2		
		Hor	Vert	Hor	Vert	Hor	Vert	

Trials to Determine Best Setting for Test III, Phase II

Fired in 2-round bursts from the prone position.

Rifleman: Keele

1	1	+1.3	-1.6	+ 2.7	+ 4.3	+ 1.4	+ 5.9	6.1
2	2	+0.8	-1.3	- 3.8	+ 4.1	- 4.6	+ 5.4	7.1
3	3	+0.4	-2.0	+ 9.9	+ 4.8	+ 9.5	+ 6.8	11.8
4	4	+0.2	-2.9	- 1.2	+ 5.2	- 1.4	+ 8.1	8.2
5	5	+1.3	-2.5	+ 6.9	+11.6	+ 5.6	+14.1	15.1
6	6	0.0	-1.7	+ 3.7	+11.0	+ 3.7	+12.7	13.3
Repeat 2	7	-0.3	-2.2	+ 1.8	+ 6.7	+ 2.1	+ 8.9	9.2
7	8	+0.2	-1.5	- 9.0	+ 7.9	- 9.2	+ 9.4	13.2
8	9	+0.1	-1.5	+ 2.4	+ 3.0	+ 2.3	+ 4.5	5.1
Repeat 1	10	+0.4	-2.6	-10.4	- 4.3	-10.8	- 1.7	10.9

Trials to Verify Setting No. 1

1	-0.3	-1.2	+ 2.9	+ 5.7	+ 3.2	+ 6.9	7.7
2	-0.1	-2.3	+ 9.9	- 6.7	+10.0	- 4.4	11.0
3	+0.3	-1.9	- 1.4	- 6.4	- 1.7	- 4.5	4.8
					Average		7.8

Rifleman: Connolly

1	1	+0.4	+0.2	- (2nd round off target)				
2	2	-0.1	-1.0	-13.7	- 7.7	-13.6	- 6.7	15.1
3	3	+0.3	-1.1	- 9.4	- 5.2	- 9.7	- 4.1	10.6
4	4	-0.5	-0.4	- 4.6	- 1.2	- 4.1	- 0.8	4.2
5	5	+0.7	-1.3	+ 0.2	+ 4.4	- 0.5	+ 5.7	5.7
6	6	0.0	-1.5	+ 4.3	- 3.5	+ 4.3	- 2.0	4.7
Repeat 6	7	0.0	-1.4	+ 3.8	- 6.6	+ 3.8	- 5.2	6.4
Repeat 3	8	+0.4	-1.4	- 4.7	- 3.3	- 5.1	- 1.9	5.5
7	9	+0.1	-1.1	+ 2.1	+ 5.9	+ 2.0	+ 7.0	7.3
Repeat 7	10	0.0	-0.9	+ 1.7	+ 2.4	+ 1.7	+ 3.3	3.8
Repeat 7	11	+0.2	-1.0	- 1.0	- 5.4	- 1.2	- 4.4	4.5

Trials to Verify Setting No. 7

1	-0.4	-0.6	+ 3.4	+ 0.5	+ 3.8	+ 1.1	3.9
2	0.0	-1.4	+ 0.8	+ 0.4	+ 0.8	+ 1.8	2.0
3	-0.1	-0.6	+ 1.4	+ 1.6	+ 1.5	+ 2.2	2.7
					Average		2.9

Burst No.	Distance from Index Point				Distance between Shot Holes		Extreme Spread
	1st Round		2nd Round		1 to 2		
	Hor	Vert	Hor	Vert	Hor	Vert	

## Test of Selected Setting for Test III, Phase II

Fired in 2-round burst from the prone position

Rifleman: Crowther

1	+0.2	-2.3	-0.6	+5.1	-0.8	+7.4	7.5
2	0.0	-1.8	-1.7	-2.3	-1.7	-0.5	1.8
3	+0.1	-0.4	-7.9	-0.2	-8.0	+0.2	8.1
4	-0.1	-1.8	-4.0	-2.8	-3.9	-1.0	4.1
5	-0.3	-2.4	-5.8	-1.0	-5.5	+1.4	5.6
6	-0.2	-2.2	-3.8	-5.5	-3.6	-3.3	4.9
7	-0.6	-2.2	-1.8	-3.0	-1.2	-0.8	1.5
8	-0.6	-1.9	+1.9	+2.8	+2.5	+4.7	5.4
9	-0.7	-1.5	-5.4	+0.2	-4.7	+1.7	5.0
10	+0.1	-2.9	-1.2	-0.1	-1.3	+2.8	3.1
Average	-0.2	-1.9	-3.0	-0.7	-2.8	+1.3	4.7

Rifleman: Eller

1	+0.1	-1.1	+5.8	-2.4	+5.7	-1.3	5.9
2	-0.2	+0.4	+0.9	+6.7	+1.1	+6.3	6.4
3	+0.9	-1.7	+2.3	+2.2	+1.4	+3.9	4.1
4	+0.8	+0.4	+4.9	+2.0	+4.1	+1.6	4.5
5	0.0	-0.4	+0.9	-0.4	+0.9	0.0	1.0
6	+0.2	-0.3	+1.4	-0.3	+1.2	0.0	1.2
7	+0.5	-1.7	+2.6	+4.6	+2.1	+6.3	6.6
8	+1.0	+0.5	+0.1	+2.0	-0.9	+1.5	1.8
9	+0.5	+0.8	0.0	+5.6	-0.5	+4.8	4.9
10	+0.5	-1.3	-0.6	+5.7	-1.1	+7.0	7.1
Average	+0.4	-0.4	+1.8	+2.6	+1.4	+3.0	4.4

<u>Burst No.</u>	<u>Distance from Index Point</u>				<u>Distance between Shot Holes</u>		<u>Extreme Spread</u>
	<u>1st Round</u>		<u>2nd Round</u>		<u>1 to 2</u>		
	<u>Hor</u>	<u>Vert</u>	<u>Hor</u>	<u>Vert</u>	<u>Hor</u>	<u>Vert</u>	

## Test of Selected Setting for Test III, Phase II

Fired in 2-round bursts from the prone position

Rifleman: Staley

1	+0.4	-0.7	+2.1	+0.5	+1.7	+1.2	2.0
2	+0.3	-0.8	-3.0	-1.1	-3.3	-0.3	3.4
3	-0.3	0.0	-0.4	-0.4	-0.1	-0.4	0.4
4	-0.2	+0.3	-0.4	-1.3	-0.2	-1.6	1.6
5	+0.1	-0.4	-0.3	-3.4	-0.4	-3.0	3.1
6	-0.4	-0.1	+4.6	-1.2	+5.0	-1.1	5.1
7	-0.2	-1.4	-3.6	-3.8	-3.4	-2.4	4.2
8	+0.5	-1.3	+0.8	-5.0	+0.3	-3.7	3.8
9	0.0	-0.9	-2.5	-0.6	-2.5	+0.3	2.5
10	-0.3	-1.0	-2.2	-4.9	-1.9	-3.9	4.3
Average	0.0	-0.6	-0.5	-2.1	-0.5	-1.5	3.0

Rifleman: Keele

1	-0.3	-1.1	+2.2	-1.3	+2.5	-0.2	2.5
2	+0.5	-1.4	+2.4	-1.8	+1.9	-0.4	2.0
3	-0.1	-1.9	+2.0	-2.0	+2.1	-0.1	2.1
4	-0.2	-2.3	+3.4	-0.6	+3.6	+1.7	4.0
5	+0.2	-1.4	+3.8	+0.9	+3.6	+2.3	4.3
6	-0.3	-1.6	+6.6	+2.9	+6.9	+4.5	8.2
7	-0.4	-1.6	+4.4	-2.0	+4.8	-0.4	4.8
8	-1.0	-1.4	+6.2	-4.8	+7.2	-3.4	7.9
9	-0.2	-1.6	+6.2	-1.1	+6.4	+0.5	6.5
10	+0.1	-1.5	+5.8	-0.1	+5.7	+1.4	5.9
Average	-0.2	-1.6	+4.3	-1.0	+4.5	+0.6	4.8

<u>Burst No.</u>	<u>Distance from Index Point</u>				<u>Distance between Shot Holes</u>		<u>Extreme Spread</u>
	<u>1st Round</u>		<u>2nd Round</u>		<u>1 to 2</u>		
	<u>Hor</u>	<u>Vert</u>	<u>Hor</u>	<u>Vert</u>	<u>Hor</u>	<u>Vert</u>	

## Test of Selected Setting for Test III, Phase II

Fired in 2-round bursts from the prone position

Rifleman: Connolly

1	+0.2	-1.1	+4.3	-3.7	+4.1	-2.6	4.9
2	-0.2	-1.2	+1.8	0.0	+2.0	+1.2	2.3
3	+0.2	-0.9	+1.3	-2.8	+1.1	-1.9	2.2
4	-0.3	-0.8	-0.8	-2.7	-0.5	-1.9	2.0
5	-0.3	-1.4	+1.3	-7.3	+1.6	-5.9	6.1
6	-0.5	-1.2	+1.5	-9.7	+2.0	-8.5	8.8
7	-0.2	-1.8	+3.3	-3.4	+3.5	-1.6	3.9
8	-0.1	-1.1	+1.8	-4.9	+1.9	-3.8	4.3
9	-0.1	-1.1	+1.8	-6.3	+1.9	-5.2	5.5
10	+0.5	-0.8	+1.1	+1.2	+0.6	+2.0	2.1
Average	-0.1	-1.1	+1.7	-4.0	+1.8	-2.8	4.2

<u>Burst No.</u>	<u>Distance from Index Point</u>				<u>Distance between Shot Holes</u>		<u>Extreme Spread</u>
	<u>1st Round</u>		<u>2nd Round</u>		<u>1 to 2</u>		
	<u>Hor</u>	<u>Vert</u>	<u>Hor</u>	<u>Vert</u>	<u>Hor</u>	<u>Vert</u>	

## Test of Selected Setting for Test III, Phase II

Fired in 2-round bursts from the standing position

Rifleman: Crowther

1	0.0	-1.6	-7.5	-24.2	-7.5	-22.6	23.8
2	+0.1	-0.9	+1.2	-13.2	+1.1	-12.3	12.3
3	-0.1	-0.6	+0.9	-13.3	+1.0	-12.7	12.7
4	-0.7	-0.6	-4.5	-20.9	-3.8	-20.3	20.6
5	-1.2	+0.9	-0.5	-13.9	+0.7	-14.8	14.8
6	-0.7	0.0	-4.8	-9.5	-4.1	-9.5	10.3
7	+0.4	0.0	-5.6	-11.7	-6.0	-11.7	13.1
8	+0.1	-0.2	-6.2	-12.1	-6.3	-11.9	13.4
9	+0.3	-0.8	-6.8	-12.9	-7.1	-12.1	14.0
10	+0.5	-1.3	-3.3	-16.1	-3.8	-14.8	15.3
Average	-0.1	-0.5	-3.7	-14.8	-3.6	-14.3	15.0

<u>Burst No.</u>	<u>Distance from Index Point</u>				<u>Distance between Shot Holes</u>		<u>Extreme Spread</u>
	<u>1st Round</u>		<u>2nd Round</u>		<u>1 to 2</u>		
	<u>Hor</u>	<u>Vert</u>	<u>Hor</u>	<u>Vert</u>	<u>Hor</u>	<u>Vert</u>	
Fired in 2-round bursts from the standing position							
Rifleman: Eller							
1	+0.7	+1.9	+3.0	-27.3	+2.3	-29.2	29.3
2	+1.4	+2.7	+1.2	-15.3	-0.2	-18.0	18.0
3	+0.4	+2.5	-0.4	-16.2	-0.8	-18.7	18.7
4	-0.3	+1.0	-0.2	-20.9	+0.1	-21.9	21.9
5	+2.9	+1.6	+4.2	-16.1	+1.3	-17.7	17.7
6	+0.5	+3.3	+1.1	-19.1	+0.6	-22.4	22.4
7	+0.6	+2.0	-0.6	-19.7	-1.2	-21.7	21.7
8	+2.5	+1.3	+6.8	-18.0	+4.3	-19.3	19.7
9	+0.8	+0.2	+3.2	-22.8	+2.4	-23.0	23.1
10	+0.5	+2.0	-3.0	-21.4	-3.5	-23.4	23.6
Average	+1.0	+1.8	+1.5	-19.7	+0.5	-21.5	21.6

<u>Burst No.</u>	<u>Distance from Index Point</u>				<u>Distance between Shot Holes</u>		<u>Extreme Spread</u>
	<u>1st Round</u>		<u>2nd Round</u>		<u>1 to 2</u>		
	<u>Hor</u>	<u>Vert</u>	<u>Hor</u>	<u>Vert</u>	<u>Hor</u>	<u>Vert</u>	

## Test of Selected Setting for Test III, Phase II

Fired in 2-round bursts from the standing position

Rifleman: Staley

1	-0.1	+0.3	+1.2	- 6.6	+1.3	- 6.9	7.1
2	+0.7	-1.1	+2.2	- 7.7	+1.5	- 6.6	6.8
3	-1.1	+1.0	+5.7	- 6.7	+6.8	- 7.7	10.2
4	0.0	0.0	-4.2	- 8.5	-4.2	- 8.5	9.5
5	+0.2	-0.3	+0.4	- 6.3	+0.2	- 6.0	6.0
6	+0.1	-0.4	-2.1	- 9.3	-2.2	- 8.9	9.2
7	-0.4	0.0	+3.1	- 7.4	+3.5	- 7.4	8.2
8	-0.1	-0.1	+3.3	- 6.4	+3.4	- 6.3	7.2
9	-0.4	-0.3	+1.2	- 6.8	+1.6	- 6.5	6.6
10	+0.2	-0.7	-2.6	- 8.9	-2.8	- 8.2	8.7
Average	-0.1	-0.2	+0.8	- 7.5	+0.9	- 7.3	8.0

<u>Burst No.</u>	<u>Distance from Index Point</u>				<u>Distance between Shot Holes</u>		<u>Extreme Spread</u>
	<u>1st Round</u>		<u>2nd Round</u>		<u>1 to 2</u>		
	<u>Hor</u>	<u>Vert</u>	<u>Hor</u>	<u>Vert</u>	<u>Hor</u>	<u>Vert</u>	
Fired in 2-round bursts from the standing position							
Rifleman: Keele							
1	+0.1	-1.1	+0.4	-20.2	+0.5	-19.1	19.0
2	-0.3	-1.9	+2.6	-22.1	+2.9	-20.2	20.4
3	+0.2	-1.9	+4.0	-23.9	+3.8	-22.0	22.4
4	+1.0	-2.0	-1.8	-22.7	-2.8	-20.7	21.0
5	+0.4	-2.5	+0.5	-22.3	+0.1	-19.8	19.8
6	-0.6	-2.0	-1.2	-24.7	-0.6	-22.7	22.7
7	-1.1	-2.9	+1.1	-27.1	+2.2	-24.2	24.3
8	-1.4	-2.9	+1.5	-24.7	+2.9	-21.8	22.0
9	-1.8	-1.8	-0.3	-26.1	+1.5	-24.3	24.4
10	-1.5	-1.6	+3.2	-24.1	+4.7	-22.5	23.0
Average	-0.5	-2.1	+1.0	-23.8	+1.5	-21.7	21.9

<u>Burst No.</u>	<u>Distance from Index Point</u>				<u>Distance between Shot Holes</u>		<u>Extreme Spread</u>
	<u>1st Round</u>		<u>2nd Round</u>		<u>1 to 2</u>		
	<u>Hor</u>	<u>Vert</u>	<u>Hor</u>	<u>Vert</u>	<u>Hor</u>	<u>Vert</u>	

## Test of Selected Setting for Test III, Phase II

Fired in 2-round bursts from the standing position

Rifleman: Connolly

1	0.0	-1.1	+7.2	+4.5	+7.2	+5.6	9.2
2	+0.3	-1.2	+7.0	+5.0	+6.7	+6.2	9.1
3	+0.4	-0.1	+3.6	+0.4	+3.2	+0.5	3.3
4	-0.1	-1.6	+5.4	+2.1	+5.5	+3.7	6.7
5	+0.8	-1.9	+7.0	+0.5	+6.2	+2.4	6.7
6	+0.9	-1.0	+8.8	+0.1	+7.9	+1.1	7.9
7	-0.4	0.0	+4.8	-1.8	+5.2	-1.8	5.5
8	0.0	-0.7	+6.9	-2.1	+6.9	-1.4	7.1
9	-0.1	-1.3	+8.2	+0.7	+8.3	+2.0	8.5
10	-0.3	-0.7	+6.9	+0.6	+7.2	+1.3	7.3
Average	+0.2	-1.0	+6.6	+1.0	+6.4	+2.0	7.1

Burst No.	Distance from Index Point				Distance between Shot Holes								Extreme Spread	Extreme Diameter
	1st Round		2nd Round		3rd Round		1 to 2		1 to 3		2 to 3			
	Hor	Vert	Hor	Vert	Hor	Vert	Hor	Vert	Hor	Vert	Hor	Vert		

Trials to Determine Best Setting for Test IV, Phase I

Fired in 3-round bursts from the prone position

Crowther's, Eller's, Staley's, and Keele's setting

Rifleman: Crowther

1	-0.5	-1.9	+1.8	-1.8	+2.0	+0.8	+2.3	+0.1	+2.5	+2.7	+0.2	+2.6	3.7	3.7
2	-0.5	-1.7	-0.2	-2.1	+2.1	+1.7	+0.3	-0.4	+2.6	+3.4	+2.3	+3.8	4.5	4.5
3	-1.0	-1.8	+0.6	-3.3	+2.0	+1.7	+1.6	-1.5	+3.0	+3.5	+1.4	+5.0	5.3	5.3
												Average	4.5	4.5

Rifleman: Eller

1	+1.4	-1.4	-2.8	-3.6	-8.6	-1.5	-4.2	-2.2	-10.0	-0.1	-5.8	+2.1	9.9	9.9
2	+1.4	-0.5	+2.8	-3.8	-1.0	+4.9	+1.4	-3.3	-2.4	+5.4	-3.8	+8.7	9.6	9.6
3	+2.0	+0.2	+0.5	-4.6	-4.3	-3.7	-1.5	-4.8	-6.3	-3.9	-4.8	+0.9	7.4	7.4
												Average	8.9	8.9

Rifleman: Staley

1	+0.2	-0.3	-6.1	-3.5	-11.9	+6.2	-6.3	-3.2	-12.1	+6.5	-5.8	+9.7	13.8	13.8
2	+0.2	-0.2	-2.8	-3.3	-1.1	+8.0	-3.0	-3.1	-1.3	+8.2	-1.7	+11.3	11.4	11.4
3	+0.6	+0.1	-7.3	-10.2	-9.7	-7.7	-7.9	-10.3	-10.3	-7.8	-2.4	-2.5	13.0	13.1
												Average	12.7	12.8

Rifleman: Keele

1	-0.1	+0.1	+2.2	+2.1	+3.6	+7.4	+2.3	+2.0	+3.7	+7.3	+1.4	+5.3	8.2	8.2
2	-0.6	-1.3	+1.7	+1.3	+6.4	+4.7	+2.3	+2.6	+7.0	+6.0	+4.7	+3.4	9.4	9.4
3	+0.6	-2.0	+7.9	+0.6	+12.4	+0.8	+7.3	+2.6	+11.8	+2.8	+4.5	+0.2	12.1	12.1
												Average	9.9	9.9

Burst No.	Distance from Index Point				Distance between Shot Holes						Extreme Spread	Extreme Diameter		
	1st Round		2nd Round		3rd Round		1 to 2		1 to 3				2 to 3	
	Hor	Vert	Hor	Vert	Hor	Vert	Hor	Vert	Hor	Vert			Hor	Vert
1	-1.2	-0.5	-14.1	-14.4	-24.7	-18.5	-12.9	-13.9	-23.5	-18.0	-10.6	-4.1	29.6	29.6
2	+0.5	-0.5	-15.7	-17.5	-26.6	-15.5	-16.2	-17.0	-27.1	-15.0	-10.9	+2.0	31.0	31.0
3	-0.6	-0.8	-17.5	-19.9	-28.1	-22.7	-16.9	-19.1	-27.5	-21.9	-10.6	-2.8	35.1	35.1
												Average	31.9	31.9

Rifleman: Connolly

Average for setting 13.6

Burst No.	Distance from Index Point				Distance between Shot Holes						Extreme Spread	Extreme Diameter		
	1st Round		2nd Round		3rd Round		1 to 2		1 to 3				2 to 3	
	Hor	Vert	Hor	Vert	Hor	Vert	Hor	Vert	Hor	Vert			Hor	Vert
1	-0.1	-1.5	+7.0	+11.5	+12.7	+14.4	+7.1	+13.0	+12.8	+15.9	+5.7	+2.9	20.5	20.5
2	+0.3	-2.0	+7.2	+15.1	+12.3	+16.6	+6.9	+17.1	+12.0	+18.6	+5.1	+1.5	22.1	22.1
3	+0.1	-1.7	+8.1	+13.0	+5.7	+24.8	+8.0	+14.7	+5.6	+26.5	-2.4	+11.8	27.1	27.1
												Average	23.2	23.2

Trials to Determine Best Setting for Test IV, Phase I

Fired in 3-round bursts from the prone position

Connolly's setting

Rifleman: Crowther

Rifleman: Eller

1	+1.2	-0.7	+3.7	+11.3	+4.3	+12.8	+2.5	+12.0	+3.1	+13.5	+0.6	+1.5	13.9	13.9
2	+0.1	-0.6	+6.8	+5.1	+14.9	+4.3	+6.7	+5.7	+14.8	+4.9	+8.1	-0.8	15.6	15.6
3	+1.1	-0.7	+3.3	+11.8	+4.3	+14.0	+2.2	+12.5	+3.2	+14.7	+1.0	+2.2	15.0	15.0
												Average	14.8	14.8

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Distance from Index Point

Distance between Shot Holes

Burst No.	1st Round			2nd Round			3rd Round			1 to 2			1 to 3			2 to 3			Extreme Spread	Extreme Diameter
	Hor	Vert	Avg	Hor	Vert	Avg	Hor	Vert	Avg	Hor	Vert	Avg	Hor	Vert	Avg	Hor	Vert	Avg		
Rifleman: Staley																				
1	-0.4	-0.5		-0.7	+8.6		+1.4	+20.6		-0.3	+9.1	+1.8	+21.1	+2.1	+12.0				21.2	21.2
2	+0.7	-0.5		+2.0	+12.2		+9.2	+20.7		+1.3	+12.7	+8.5	+21.2	+7.2	+8.5				22.8	22.8
3	+0.2	-0.1		-0.7	+11.5		+6.5	+23.4		-0.9	+11.6	+6.2	+23.3	+7.2	+11.9				24.3	24.3
																		Average	22.8	22.8

Rifleman: Keele

1	-0.4	-2.0		+6.6	+10.9		+12.4	+13.4		+7.0	+12.9	+12.8	+15.4	+5.8	+2.5				20.0	20.0
2	+0.2	-1.7		+4.4	+9.1		+8.4	+9.7		+4.2	+10.8	+8.2	+11.4	+4.0	+0.6				14.1	14.1
3	-0.6	-1.3		+3.9	+9.3		+7.8	+7.5		+4.5	+10.6	+8.4	+8.8	+3.9	-1.7				12.2	12.2
																		Average	15.4	15.4

Rifleman: Connolly

1	-0.2	-0.5		-7.4	+3.7		-8.0	+11.8		-7.2	+4.2	-7.8	+12.3	-0.6	+8.1				14.7	14.7
2	-1.0	+0.1		-6.4	+5.8		-5.5	+17.8		-5.4	+5.7	-4.5	+17.7	+0.9	+12.0				18.3	18.3
3	-0.3	-0.1		-6.5	+1.5		-5.4	+12.1		-6.2	+1.6	-5.1	+12.2	+1.1	+10.6				13.2	13.2
																		Average	15.4	15.4
																		Average for setting	18.3	18.3

Burst No.	Distance from Index Point				Distance between Shot Holes				Extreme Spread	Extreme Diameter				
	1st Round		2nd Round		3rd Round		1 to 2				1 to 3		2 to 3	
	Hor	Vert	Hor	Vert	Hor	Vert	Hor	Vert			Hor	Vert	Hor	Vert

Test of Selected Setting for Test IV, Phase I

Fired in 3-round bursts from the prone position

Rifleman: Crowther

1	-0.2	-2.2	-2.9	-5.1	-1.4	+1.6	-2.7	-2.9	-1.2	+3.8	+1.5	+6.7	6.8
2	-0.1	-2.2	-0.6	-5.2	-3.3	+0.9	-0.5	-3.0	-3.2	+3.1	-2.7	+6.1	6.7
3	+0.1	-1.8	-0.6	+0.4	-7.0	+10.4	-0.7	+2.2	-7.1	+12.2	-6.4	+10.0	14.2
4	+0.2	-1.9	-3.2	-1.8	-11.0	+4.4	-3.4	+0.1	-11.2	+6.3	-7.8	+6.2	12.9
5	0.0	-2.3	+2.3	-2.3	+5.1	-2.3	+2.3	0.0	+5.1	0.0	+2.8	0.0	5.0
6	-0.8	-1.5	+2.5	-0.5	+4.1	+3.8	+3.3	+1.0	+4.9	+5.3	+1.6	+4.3	7.2
7	-0.4	-1.9	-2.4	-4.2	-11.7	+7.3	-2.0	-2.3	-11.3	+9.2	-9.3	+11.5	14.8
8	-0.1	-2.0	+1.1	-3.0	+0.6	+1.3	+1.2	-1.0	+0.7	+3.3	-0.5	+4.3	4.3
9	-0.5	-1.6	-1.2	-0.4	-3.1	+2.9	-0.7	+1.2	-2.6	+4.5	-1.9	+3.3	5.1
10	-0.3	-1.3	-1.0	-4.5	-5.7	-2.6	-0.7	-3.2	-5.4	-1.3	-4.7	+1.9	5.6
Average	-0.2	-1.9	-0.6	-2.7	-3.3	+2.8	-0.4	-0.8	-3.1	+4.7	-2.7	+5.4	8.3

Rifleman: Eller

1	+1.0	-1.1	+0.6	-9.9	+7.7	-9.1	-0.4	-8.8	+6.7	-8.0	+7.1	+0.8	10.4
2	+1.2	-0.8	-1.5	-0.1	-1.9	+9.2	-2.7	+0.7	-3.1	+10.0	-0.4	+9.3	10.4
3	+1.2	-0.9	-0.8	+1.9	-1.6	+4.1	-2.0	+2.8	-2.8	+5.0	-0.8	+2.2	5.8
4	+0.8	-0.9	+0.5	-5.1	+2.7	-3.1	-0.3	-4.2	+1.9	-2.2	+2.2	+2.0	4.2
5	+1.7	-1.0	+0.2	-5.9	+0.2	-3.0	-1.5	-4.9	-1.5	-2.0	0.0	+2.9	5.4
6	+2.1	-0.3	+2.0	-2.8	+5.3	+0.3	-0.1	-2.5	+3.2	+0.6	+3.3	+3.1	4.6
7	+1.3	-0.9	-2.8	-4.2	+2.7	+0.2	-4.1	-3.3	-4.0	+1.1	+0.1	+4.4	5.4
8	+0.4	-0.2	-3.6	-5.5	+1.3	-2.1	-4.0	-5.3	+0.9	-1.9	+4.9	+3.4	6.7
9	+1.1	-1.0	-0.1	-5.4	+5.9	+3.9	-1.2	-4.4	+4.8	+4.9	+6.0	+9.3	11.1
10	+0.5	+0.4	-1.9	+3.5	+1.4	+10.8	-2.4	+3.1	+0.9	+10.4	+3.3	+7.4	10.5
Average	+1.1	-0.7	-0.7	-3.4	+1.8	+1.1	-1.9	-2.7	+0.7	+1.8	+2.6	+4.5	7.4

Burst No.	Distance from Index Point				Distance between Shot Holes						Extreme Spread	Extreme Diameter		
	1st Round		2nd Round		3rd Round		1 to 2		1 to 3				2 to 3	
	Hor	Vert	Hor	Vert	Hor	Vert	Hor	Vert	Hor	Vert			Hor	Vert

Test of Selected Setting for Test IV, Phase I

Fired in 3-round bursts from the prone position

Rifleman: Staley

1	+0.6	-0.6	-2.8	-5.0	-5.4	+3.3	-3.4	-4.4	-6.0	+3.9	-2.6	+8.3	8.7	8.8
2	-0.3	0.0	-3.7	-8.5	-4.8	-2.9	-3.4	-8.5	-4.5	-2.9	-1.1	+5.6	9.2	9.2
3	+0.2	-0.1	-2.4	-10.0	-3.2	-6.3	-2.6	-9.9	-3.4	-6.2	-0.8	+3.7	10.3	10.3
4	-0.2	-0.1	-2.9	-8.8	-2.2	-4.0	-2.7	-8.7	-2.0	-3.9	+0.7	+4.8	9.2	9.2
5	+1.0	+0.2	-1.0	-6.3	-0.2	-0.1	-2.0	-6.5	-1.2	-0.3	+0.8	+6.2	6.8	6.8
6	+0.3	-0.6	-2.3	-7.7	-2.3	+3.0	-2.6	-7.1	-2.6	+3.6	0.0	+10.7	10.7	10.7
7	+0.1	-0.6	+0.2	-5.0	+3.1	+3.5	+0.1	-4.4	+3.0	+4.1	+2.9	+8.5	9.0	9.0
8	+0.9	-0.1	-3.3	-3.7	-0.1	+5.2	-4.2	-3.6	-1.0	+5.3	+3.2	+8.9	9.5	9.5
9	+0.4	-0.4	-1.8	-2.0	-2.6	+8.7	-2.2	-1.6	-3.0	+9.1	-0.8	+10.7	10.7	10.7
10	-0.3	-0.8	-4.1	-7.5	+0.9	-5.4	-3.8	-6.7	+1.2	-4.6	+5.0	+2.1	7.8	7.8
Average	+0.3	-0.3	-2.4	-6.5	-1.7	+0.5	-2.7	-6.2	-2.0	+0.8	+0.7	+7.0	9.2	9.2

Rifleman: Keele

1	-0.4	-1.6	+3.6	-1.0	+5.8	-0.8	+4.0	+0.4	+6.2	+0.8	+2.2	+0.2	6.3	6.3
2	+1.2	-1.8	+0.3	+1.4	+2.8	+7.6	-0.9	+3.2	+1.6	+9.4	+2.5	+6.2	9.6	9.6
3	+1.3	-2.8	+2.3	+1.2	+3.5	+4.4	+1.0	+4.0	+2.2	+7.2	+1.2	+3.2	7.6	7.6
4	+0.5	-1.5	+4.7	+4.8	+6.1	+4.9	+4.2	+6.3	+5.6	+6.4	+1.4	+0.1	8.5	8.5
5	+0.3	-1.4	+2.9	+2.3	+2.6	+5.7	+2.6	+3.7	+2.3	+7.1	-0.3	+3.4	7.5	7.5
6	0.0	-1.8	+3.4	+0.8	+5.8	+1.8	+3.4	+2.6	+5.8	+3.6	+2.4	+1.0	6.8	6.8
7	+0.1	-1.8	-1.2	-4.0	-0.1	-2.3	-1.3	-2.2	-0.2	-0.5	+1.1	+1.7	2.6	2.6
8	+0.1	-2.5	-1.6	-2.1	-3.8	+1.6	-1.7	+0.4	-3.9	+4.1	-2.2	+3.7	5.6	5.6
9	-0.2	-1.5	+2.4	-2.9	+4.1	+0.6	+2.6	-1.4	+4.3	+2.1	+1.7	+3.5	4.9	4.9
10	-0.3	-2.0	+1.9	-1.5	+4.9	+1.9	+2.2	+0.5	+5.2	+3.9	+3.0	+3.4	6.6	6.6
Average	+0.3	-1.9	+1.9	-0.1	+3.2	+2.5	+1.6	+1.8	+2.9	+4.4	+1.3	+2.6	6.6	6.6

Burst No.	Distance from Index Point						Distance between Shot Holes						Extreme Spread	Extreme Diameter
	1st Round		2nd Round		3rd Round		1 to 2		1 to 3		2 to 3			
	Hor	Vert	Hor	Vert	Hor	Vert	Hor	Vert	Hor	Vert	Hor	Vert		
1	+0.2	-0.8	-12.5	-19.4	-26.1	-21.3	-12.7	-18.6	-26.3	-20.5	-13.6	-1.9	33.4	33.4
2	+0.4	-1.2	-11.8	-19.7	-24.2	-21.9	-12.2	-18.5	-24.6	-20.7	-12.5	-2.2	32.2	32.2
3	-0.1	-1.1	-12.9	-21.0	-28.5	-29.6	-12.8	-19.9	-28.4	-28.5	-15.6	-8.6	40.3	40.3
4	+0.3	-1.3	-12.6	-23.6	-23.4	-27.7	-12.9	-22.3	-23.7	-26.4	-10.8	-4.1	35.5	35.5
5	+0.2	-0.6	-10.8	-18.0	-23.6	-21.7	-11.0	-17.4	-23.8	-21.1	-12.8	-3.7	31.8	31.8
6	+0.1	-0.7	-14.9	-25.6	-24.3	-27.7	-15.0	-24.9	-24.4	-27.0	-9.4	-2.1	36.5	36.5
7	+0.1	-0.9	-12.8	-22.7	-22.7	-25.1	-12.9	-21.8	-22.8	-24.2	-9.9	-2.4	33.3	33.3
8	+0.1	-0.5	-11.1	-19.6	-16.5	-13.4	-11.2	-19.1	-16.6	-12.9	-5.4	+6.2	22.1	22.1
9	+0.4	-1.5	-13.2	-23.7	-24.6	-27.8	-13.6	-22.2	-25.0	-26.3	-11.4	-4.1	36.4	36.4
10	-0.1	-0.9	-11.2	-19.4	-19.7	-23.3	-11.1	-18.5	-19.6	-22.4	-8.5	-3.9	29.8	29.8
Average	+0.2	-1.0	-12.4	-21.3	-23.4	-24.0	-12.5	-20.3	-23.5	-23.0	-11.0	-2.7	33.1	33.1

Test of Selected Setting for Test IV, Phase I

Fired in 3-round bursts from the prone position

Rifleman: Connolly

Burst No.	Distance from Index Point						Distance between Shot Holes						Extreme Spread	Extreme Diameter
	1st Round		2nd Round		3rd Round		1 to 2		1 to 3		2 to 3			
	Hor	Vert	Hor	Vert	Hor	Vert	Hor	Vert	Hor	Vert	Hor	Vert		

Test of Selected Setting for Test IV, Phase I

Fired in 3-round bursts from the standing position

Rifleman: Crowther

1	+0.5	-0.9	-7.8	-13.5	-5.5	-24.3	-8.3	-12.6	-6.0	-23.4	+2.3	-10.8	24.2	24.2
2	-0.4	-2.9	-0.7	-13.6	+6.4	-20.6	-0.3	-10.7	+6.8	-17.7	+7.1	-7.0	18.9	18.9
3	+0.7	-2.0	-9.5	-15.7	-11.8	-20.6	-10.2	-13.7	-12.5	-18.6	-2.3	-4.9	22.5	22.5
4	-1.1	-0.2	-7.2	-8.3	-9.3	-4.0	-6.1	-8.1	-8.2	-3.8	-2.1	+4.3	10.2	10.2
5	-1.1	-1.6	-3.9	-15.9	-2.5	-30.9	-2.8	-14.3	-1.4	-29.3	+1.4	-15.0	29.3	29.3
6	-0.6	-0.1	-8.3	-15.1	-5.5	-30.0	-7.7	-15.0	-4.9	-29.9	+2.8	-14.9	30.4	30.4
7	-0.6	-3.5	-7.0	-12.5	+6.6	-11.7	-6.4	-9.0	+7.2	-8.2	+13.6	+0.8	14.0	14.0
8	-0.1	-2.8	-10.0	-19.4	-12.8	-26.8	-9.9	-16.6	-12.7	-24.0	-2.8	-7.4	27.2	27.2
9	+0.3	-2.0	-4.4	-13.6	+4.5	-22.1	-4.7	-11.6	+4.2	-20.1	+8.9	-8.5	20.4	20.4
10	-0.7	-3.0	-12.1	-16.5	-15.0	-13.6	-11.4	-13.5	-14.3	-10.6	-2.9	+2.9	17.8	17.8
Average	-0.3	-1.9	-7.1	-14.4	-4.5	-20.5	-6.8	-12.5	-4.2	-18.6	+2.6	-6.1	21.4	21.4

Rifleman: Eller

1	+0.3	+1.7	-3.6	-12.9	+9.0	-18.4	-3.9	-14.6	+8.7	-20.1	+12.6	-5.5	21.9	21.9
2	+0.7	+1.6	-2.2	-12.4	+2.8	-22.9	-2.9	-14.0	+2.1	-24.5	+5.0	-10.5	24.7	24.7
3	+0.4	+0.6	-0.1	-15.8	+3.7	-17.7	-0.5	-16.4	+3.3	-18.3	+3.8	-1.9	18.6	18.6
4	-0.5	+1.4	-0.7	-8.6	+12.2	-11.5	-0.2	-10.0	+12.7	-12.9	+12.9	-2.9	18.2	18.2
5	-0.7	+2.2	-1.0	-11.8	+3.1	-21.0	-0.3	-14.0	+3.8	-23.2	+4.1	-9.2	23.6	23.6
6	+0.3	+1.6	-3.1	-4.5	+1.4	-0.5	-3.4	-6.1	+1.1	-2.1	+4.5	+4.0	7.0	7.0
7	+0.6	+0.8	-5.6	-12.9	-4.6	-24.6	-6.2	-13.7	-5.2	-25.4	+1.0	-11.7	25.9	25.9
8	+1.6	+0.6	+0.3	-10.9	+5.1	-13.5	-1.3	-11.5	+3.5	-14.1	+4.8	-2.6	14.5	14.5
9	+0.9	+2.0	-1.4	-5.7	+2.5	-4.6	-2.3	-7.7	+1.6	-6.6	+3.9	+1.1	8.1	8.1
10	-1.3	+1.2	-3.8	-5.5	-3.8	-9.7	-2.5	-6.7	-2.5	-10.9	0.0	-4.2	11.2	11.2
Average	+0.2	+1.4	-2.1	-10.1	+3.1	-14.4	-2.4	-11.5	+2.9	-15.8	+5.3	-4.3	17.4	17.4

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Burst No.	Distance from Index Point				Distance between Shot Holes				Extreme Spread	Extreme Diameter			
	1st Round		2nd Round		3rd Round		1 to 2				1 to 3		2 to 3
	Hor	Vert	Hor	Vert	Hor	Vert	Hor	Vert			Hor	Vert	

Test of Selected Setting for Test IV, Phase I

Fired in 3-round bursts from the standing position

Rifleman: Staley

1	+0.5	-0.2	-12.6	-13.8	-11.2	-17.3	-13.1	-13.6	-11.7	-17.1	+ 1.4	- 3.5	20.8
2	+0.1	-0.8	- 9.2	- 8.8	- 8.9	-10.1	- 9.3	- 8.0	- 9.0	- 9.3	+ 0.3	- 1.3	13.0
3	+0.3	-1.3	-13.1	-13.6	- 8.8	-11.6	-13.4	-12.3	- 9.1	-10.3	+ 4.3	+ 2.0	18.3
4	+0.9	-1.1	-10.9	-15.3	- 4.2	-17.3	-11.8	-14.2	- 5.1	-16.2	+ 6.7	- 2.0	18.5
5	+0.8	-1.1	-12.5	-13.8	- 6.5	-14.1	-13.3	-12.7	- 7.3	-13.0	+ 6.0	- 0.3	18.3
6	-0.6	+0.6	-13.1	-14.8	- 9.5	-15.0	-12.5	-15.4	- 8.9	-15.6	+ 3.6	- 0.2	19.9
7	+0.1	-0.3	-15.5	-14.2	- 9.8	-11.6	-15.6	-13.9	- 9.9	-11.3	+ 5.7	+ 2.6	20.9
8	+0.8	-0.9	-18.6	-15.9	-24.4	-17.7	-19.4	-15.0	-25.2	-16.8	- 5.8	- 1.8	30.3
9	+0.0	-0.7	-15.5	-12.6	- 7.6	- 9.1	-15.5	-11.9	- 7.6	- 8.4	+ 7.9	+ 3.5	19.5
10	+0.8	-1.1	-15.8	-13.6	-16.0	-13.4	-16.6	-12.5	-16.8	-12.3	- 0.2	+ 0.2	20.9
Average	+0.4	-0.7	-13.7	-13.6	-10.7	-13.7	-14.1	-13.0	-11.1	-13.0	+ 3.0	- 0.1	20.0

Rifleman: Keele

1	-1.2	-1.9	- 6.2	-16.1	+ 3.4	-28.3	- 5.0	-14.2	+ 4.6	-26.4	+ 9.6	-12.2	26.8
2	+0.5	-1.5	- 1.9	-16.2	+ 9.0	-32.4	- 2.4	-14.7	+ 8.5	-30.9	+10.9	-16.2	32.1
3	0.0	-3.0	- 2.8	-16.2	+12.0	-29.4	- 2.8	-13.2	+12.0	-26.4	+14.8	-13.2	29.1
4	+0.9	-2.3	- 2.7	-14.3	+ 8.8	-25.6	- 3.6	-12.0	+ 7.9	-23.3	+11.5	-11.3	24.6
5	-0.4	-2.1	- 7.5	-13.6	- 1.3	-28.3	- 7.1	-11.5	- 0.9	-26.2	+ 6.2	-14.7	26.2
6	-0.1	-2.4	- 7.2	-16.4	- 0.1	-29.5	- 7.1	-14.0	0.0	-27.1	+ 7.1	-13.1	27.1
7	-0.5	-1.3	- 3.1	-15.4	+ 9.6	-26.9	- 2.6	-14.1	+10.1	-25.6	+12.7	-11.5	27.6
8	-0.1	-2.4	- 5.6	-16.2	+ 2.3	-30.2	- 5.5	-13.8	+ 2.4	-27.8	+ 7.9	-14.0	27.9
9	-0.4	-2.2	- 7.3	-17.6	+ 0.3	-28.9	- 6.9	-15.4	+ 0.7	-26.7	+ 7.6	-11.3	26.7
10	-0.3	-1.5	- 5.5	-14.7	+ 1.5	-24.1	- 5.2	-13.2	+ 1.8	-22.6	+ 7.0	- 9.4	22.6
Average	-0.2	-2.1	- 5.0	-15.7	+ 4.6	-28.4	- 4.8	-13.6	+ 4.7	-26.3	+ 9.5	-12.7	27.1

Burst No.	Distance from Index Point						Distance between Shot Holes						Extreme Spread	Extreme Diameter
	1st Round		2nd Round		3rd Round		1 to 2		1 to 3		2 to 3			
	Hor	Vert	Hor	Vert	Hor	Vert	Hor	Vert	Hor	Vert	Hor	Vert		
1	-0.4	-1.6	-14.7	-26.1	-7.5	-47.5	-14.3	-24.5	-7.1	-45.9	+7.2	-21.4	46.3	46.3
2	-0.9	-2.3	-15.0	-24.0	-11.9	-45.0	-14.1	-21.7	-11.0	-42.7	+3.2	-21.0	44.0	44.0
3	-1.1	-0.1	-15.2	-26.9	-14.4	-49.8	-14.1	-26.8	-13.3	-49.7	+0.8	-22.9	51.4	51.4
4	-0.4	+0.4	-17.5	-21.2	-21.2	-44.1	-17.1	-21.6	-20.8	-44.5	-3.7	-22.9	49.1	49.1
5	+0.1	-0.7	-12.4	-22.1	-10.3	-40.5	-12.5	-21.4	-10.4	-39.8	+2.1	-18.4	41.0	41.0
6	-0.1	-1.0	-10.6	-24.5	-5.8	-47.0	-10.5	-23.5	-5.7	-46.0	+4.8	-22.5	46.3	46.3
7	-0.4	+0.1	-15.7	-25.5	-13.1	-50.0	-15.3	-25.6	-12.7	-50.1	+2.6	-24.5	51.5	51.5
8	-0.1	+0.4	-13.3	-22.5	-8.9	-55.5	-13.2	-22.9	-8.8	-55.9	+4.4	-33.0	56.4	56.4
9	-1.7	+1.7	-17.2	-19.6	-11.5	-40.8	-15.5	-21.3	-9.8	-42.5	+5.7	-21.2	43.5	43.5
10	+0.1	-2.1	-13.5	-23.0	-9.2	-41.8	-13.6	-20.9	-9.3	-39.7	+4.3	-18.8	40.6	40.6
Average	-0.5	-0.5	-14.5	-23.5	-11.4	-46.2	-14.0	-23.0	-10.9	-45.7	+3.1	-22.7	47.0	47.0

Test of Selected Setting for Test IV, Phase I

Fired in 3-round bursts from the standing position

Rifleman: Connolly

Burst No.	Distance from Index Point				Distance between Shot Holes		Extreme Spread
	1st Round		2nd Round		1 to 2		
	Hor	Vert	Hor	Vert	Hor	Vert	

## Trials to Determine Best Setting for Test IV, Phase II

Fired in 2-round bursts from the prone position

Crowther's and Eller's setting

Rifleman: Crowther

1	-0.3	-1.4	+ 0.3	- 2.6	+ 0.6	- 1.2	1.4
2	0.0	-1.1	+ 1.5	- 5.8	+ 1.5	- 4.7	5.0
3	+1.1	-1.8	+ 3.5	- 6.4	+ 2.4	- 4.6	5.3
						Average	3.9

Rifleman: Eller

1	+0.8	+0.1	+ 2.2	- 0.8	+ 1.4	- 0.9	1.6
2	+1.2	-0.1	- 2.6	+ 3.0	- 3.8	+ 3.1	4.9
3	+2.0	-0.6	+ 1.0	- 3.1	- 1.0	- 2.5	2.8
						Average	3.1

Rifleman: Staley

1	-0.1	+0.2	- 6.0	- 8.5	- 5.9	- 8.7	10.5
2	+0.5	-0.4	- 8.5	-17.3	- 9.0	-16.9	19.1
3	+0.5	-0.5	- 4.1	-16.9	- 4.6	-16.4	17.0
						Average	15.5

Rifleman: Keele

1	-0.6	-1.8	- 1.9	- 0.3	- 1.3	+ 1.5	2.0
2	0.0	-1.5	- 5.4	-11.0	- 5.4	- 9.5	11.0
3	+0.9	-2.0	- 5.6	-11.5	- 6.5	- 9.5	11.6
						Average	8.2

Rifleman: Connolly

1	-0.2	-0.1	-19.8	-24.4	-19.6	-24.3	31.3
2	-0.1	-0.4	-15.7	-23.2	-15.6	-22.8	27.6
3	-0.3	-1.1	-16.9	-25.7	-16.6	-24.6	29.7
						Average	28.8

Average for setting 12.1

Burst No.	Distance from Index Point				Distance between Shot Holes		Extreme Spread
	1st Round		2nd Round		1 to 2		
	Hor	Vert	Hor	Vert	Hor	Vert	

## Trials to Determine Best Setting for Test IV, Phase II

Fired in 2-round bursts from the prone position

## Staley's setting

Rifleman: Crowther

1	+0.3	-1.8	+ 3.0	- 2.6	+ 2.7	- 0.8	2.9
2	-0.9	-1.8	+ 6.7	- 1.6	+ 7.6	+ 0.2	7.6
3	-1.6	-1.4	+ 7.6	+ 1.0	+ 9.2	+ 2.4	9.6
						Average	6.7

Rifleman: Eller

1	+0.5	+0.5	+ 2.0	- 1.3	+ 1.5	- 1.8	2.4
2	+1.0	+0.3	+ 3.0	- 0.9	+ 2.0	- 1.2	2.3
3	+0.8	+1.2	+ 4.1	+ 7.3	+ 3.3	+ 6.1	6.9
						Average	3.9

Rifleman: Staley

1	-0.8	0.0	- 2.8	- 3.5	- 2.0	- 3.5	4.0
2	-0.1	+0.1	+ 0.3	- 3.7	+ 0.4	- 3.8	3.8
3	-0.3	-0.3	- 1.1	- 4.9	- 0.8	- 4.6	4.7
						Average	4.2

Rifleman: Keele

1	+0.3	-1.6	+ 1.4	- 3.7	+ 1.1	- 2.1	2.3
2	+0.5	-1.9	+ 5.8	- 2.2	+ 5.3	- 0.3	5.3
3	-0.5	-1.8	+ 5.8	+ 2.3	+ 6.3	+ 4.1	7.5
						Average	5.0

Rifleman: Connolly

1	-0.2	-1.6	- 9.7	-16.0	- 9.5	-14.4	17.3
2	-0.4	-0.8	-13.3	-15.8	-12.9	-15.0	19.8
3	-0.1	-0.7	-11.0	-12.0	-10.9	-11.3	15.7
						Average	17.1

Average for setting 7.5

Burst No.	Distance from Index Point				Distance between Shot Holes		Extreme Spread
	1st Round		2nd Round		1 to 2		
	Hor	Vert	Hor	Vert	Hor	Vert	

Trials to Determine Best Setting for Test IV, Phase II

Fired in 2-round bursts from the prone position

Keele's setting

Rifleman: Crowther

1	-1.2	-1.1	+ 4.4	- 3.9	+ 5.6	- 2.8	6.3
2	-0.9	-1.3	+ 7.4	- 4.7	+ 8.3	- 3.4	9.0
3	+0.1	-1.4	+ 4.9	- 7.0	+ 4.8	- 5.6	7.3
						Average	7.5

Rifleman: Eller

1	+0.6	+1.6	- 0.4	- 1.3	- 1.0	- 2.9	3.0
2	+0.9	0.0	+ 0.7	- 3.4	- 0.2	- 3.4	3.4
3	+0.1	-0.5	+ 4.0	- 3.3	+ 3.9	- 2.8	4.8
						Average	3.7

Rifleman: Staley

1	-0.1	+0.9	- 4.7	- 9.9	- 4.6	-10.8	11.8
2	+0.2	-0.2	- 5.9	-10.5	- 6.1	-10.3	12.0
3	+0.5	-0.6	- 7.4	-12.4	- 7.9	-11.8	14.1
						Average	12.6

Rifleman: Keele

1	+0.1	-1.2	+ 6.5	+ 4.0	+ 6.4	+ 5.2	8.2
2	+1.0	-2.3	+ 4.2	- 0.9	+ 3.2	+ 1.4	3.5
3	+0.4	-2.4	+ 1.8	- 4.3	+ 1.4	- 1.9	2.4
						Average	4.7

Rifleman: Connolly

1	-0.3	-1.4	-15.0	-31.0	-14.7	-29.6	33.0
2	+0.1	-0.8	-12.1	-25.1	-12.2	-24.3	27.2
3	0.0	-0.7	-13.6	-30.5	-13.6	-29.8	32.0
						Average	30.1

Average for setting 11.9

Burst No.	Distance from Index Point				Distance between Shot Holes		Extreme Spread
	1st Round		2nd Round		1 to 2		
	Hor	Vert	Hor	Vert	Hor	Vert	

## Trials to Determine Best Setting for Test IV Phase II

Fired in 2-round bursts from the prone position

Connolly's setting

Rifleman: Crowther

1	0.0	-1.7	+11.0	+10.4	+11.0	+12.1	16.4
2	0.0	-2.1	+15.8	+ 7.8	+15.8	+ 9.9	18.7
3	-0.1	-3.2	+ 9.2	+ 8.6	+ 9.3	+11.8	15.0
						Average	16.7

Rifleman: Eller

1	+1.3	-1.0	+17.1	+ 5.8	+15.8	+ 6.8	17.1
2	+1.8	-2.1	+10.8	+ 6.3	+ 9.0	+ 8.4	12.4
3	+0.9	-1.4	+ 8.8	+ 9.3	+ 7.9	+10.7	13.4
						Average	14.3

Rifleman: Staley

1	+0.4	-0.9	+ 9.6	+ 9.1	+ 9.2	+10.0	13.6
2	+0.4	-1.2	+11.2	+ 9.0	+10.8	+10.2	14.9
3	+1.0	-1.3	+ 8.6	+11.4	+ 7.6	+12.7	14.8
						Average	14.4

Rifleman: Keele

1	+0.5	-1.7	+11.1	+ 8.8	+10.6	+10.5	15.0
2	+0.7	-2.6	+11.4	+12.7	+10.7	+15.3	18.7
3	+0.6	-2.1	+13.7	+11.9	+13.1	+14.0	19.2
						Average	17.6

Rifleman: Connolly

1	-0.1	-0.8	+ 1.4	+ 0.1	+ 1.5	+ 0.9	1.8
2	+0.3	-0.2	+ 2.6	- 3.4	+ 2.3	- 3.2	4.0
3	-1.1	-0.2	+ 2.6	- 3.1	+ 3.7	- 2.9	4.8
						Average	3.5

Average for setting 13.3

Burst No.	Distance from Index Point				Distance between Shot Holes		Extreme Spread
	1st Round		2nd Round		1 to 2		
	Hor	Vert	Hor	Vert	Hor	Vert	

Test of Selected Setting for Test IV, Phase II

Fired in 2-round bursts from the prone position

Rifleman: Crowther

1	-0.6	-2.2	+2.9	+6.6	+3.5	+8.8	9.5
2	+0.8	-2.6	+3.4	+5.3	+2.6	+7.9	8.3
3	-0.4	-2.2	+0.7	+7.0	+1.1	+9.2	9.3
4	-0.2	-2.1	+2.4	+4.8	+2.6	+6.9	7.4
5	-0.2	-1.7	+2.5	+5.9	+2.7	+7.6	8.1
6	+0.1	-2.2	-2.3	+4.1	-2.4	+6.3	6.7
7	-0.7	-1.2	+2.6	+4.5	+3.3	+5.7	6.6
8	-0.7	-0.9	+0.4	+1.5	+1.1	+2.4	2.7
9	-1.1	-2.5	+3.2	+4.4	+4.3	+6.9	8.2
10	-0.3	-1.7	+3.7	+0.2	+4.0	+1.9	4.4
Average	-0.3	-1.9	+2.0	+4.4	+2.3	+6.4	7.1

Rifleman: Eller

1	+1.3	-0.7	+3.7	+1.4	+2.4	+2.1	3.3
2	+0.8	-0.6	+5.8	-1.3	+5.0	-0.7	5.0
3	+1.3	-0.5	+2.7	+2.9	+1.4	+3.4	3.7
4	+1.1	-0.8	+0.9	+3.3	-0.2	+4.1	4.0
5	+1.4	-0.5	+4.3	-0.4	+2.9	+0.1	2.9
6	+0.6	-0.7	+5.4	+4.6	+4.8	+5.3	7.2
7	+0.6	+0.5	+0.7	-1.0	+0.1	-1.5	1.5
8	+0.6	+0.1	-1.0	+0.2	-1.6	+0.1	1.6
9	+0.6	-0.5	-4.9	+0.2	-5.5	+0.7	5.5
10	+0.7	-0.1	-0.8	+5.6	-1.5	+5.7	5.9
Average	+0.9	-0.4	+1.7	+1.6	+0.8	+1.9	4.1

Burst No.	Distance from Index Point				Distance between Shot Holes		Extreme Spread
	1st Round		2nd Round		1 to 2		
	Hor	Vert	Hor	Vert	Hor	Vert	

## Test of Selected Setting for Test IV, Phase II

Fired in 2-round bursts from the prone position

Rifleman: Staley

1	-0.3	-0.2	+3.3	+1.8	+3.6	+2.0	4.1
2	-0.8	-0.3	+3.4	+3.0	+4.2	+3.3	5.3
3	+0.3	-0.3	+4.4	+2.9	+4.1	+3.2	5.3
4	+0.8	+0.4	+0.2	+3.4	-0.6	+3.0	3.0
5	-0.7	-0.2	-1.2	+5.7	-0.5	+5.9	6.0
6	0.0	0.0	+0.5	+3.8	+0.5	+3.8	3.9
7	-0.1	-0.7	+2.6	+6.5	+2.7	+7.2	7.7
8	+0.2	-0.2	-2.3	+5.2	-2.5	+5.4	6.1
9	-0.5	+0.3	+1.0	+6.1	+1.5	+5.8	6.0
10	-0.2	-0.2	+1.8	+7.2	+2.0	+7.4	7.7
Average	-0.1	-0.1	+1.4	+4.6	+1.5	+4.7	5.5

Rifleman: Keele

1	-0.4	-0.8	+3.6	+8.2	+4.0	+9.0	9.8
2	-0.2	-1.6	+4.1	+2.6	+4.3	+4.2	6.0
3	-0.3	-2.0	+1.6	+3.5	+1.9	+5.5	5.8
4	-0.1	-1.9	+1.8	+1.8	+1.9	+3.7	4.1
5	-1.0	-1.1	+1.5	+2.8	+2.5	+3.9	4.7
6	-0.2	-1.2	+2.8	+1.7	+3.0	+2.9	4.2
7	-0.7	-1.0	+2.7	+3.1	+3.4	+4.1	5.3
8	-2.5	-1.1	+0.5	0.0	+3.0	+1.1	3.2
9	0.0	-1.4	+1.9	+2.4	+1.9	+3.8	4.3
10	-0.8	-1.8	-0.6	+4.6	+0.2	+6.4	6.5
Average	-0.6	-1.4	+2.0	+3.1	+2.6	+4.5	5.4

Burst No.	Distance from Index Point				Distance between Shot Holes		Extreme Spread
	1st Round		2nd Round		1 to 2		
	Hor	Vert	Hor	Vert	Hor	Vert	

## Test of Selected Setting for Test IV, Phase II

Fired in 2-round bursts from the prone position

Rifleman: Connolly

1	-0.2	-1.1	-10.6	-11.8	-10.4	-10.7	15.0
2	+0.2	-1.6	-10.3	-12.9	-10.5	-11.3	15.5
3	-1.0	-1.9	-13.9	-12.5	-12.9	-10.6	16.7
4	-0.4	-1.0	-12.3	-13.8	-11.9	-12.8	17.5
5	-0.8	-0.8	-13.5	-11.4	-12.7	-10.6	16.5
6	-0.5	-0.7	-10.3	-13.0	- 9.8	-12.3	15.7
7	-1.0	-1.2	-12.2	- 9.0	-11.2	- 7.8	13.6
8	-1.2	-1.0	-11.3	-11.1	-10.1	-10.1	14.2
9	-0.6	-0.8	-13.0	-10.8	-12.4	-10.0	16.0
10	-1.0	-1.2	-11.3	-12.0	-10.3	-10.8	15.0
Average	-0.7	-1.1	-11.9	-11.8	-11.2	-10.7	15.6

Burst No.	Distance from Index Point				Distance between Shot Holes		Extreme Spread
	1st Round		2nd Round		1 to 2		
	Hor	Vert	Hor	Vert	Hor	Vert	

## Test of Selected Setting for Test IV, Phase II

Fired in 2-round bursts from the standing position

Rifleman: Crowther

1	+0.1	-1.0	- 5.0	- 5.6	- 5.1	- 4.6	6.9
2	+1.6	-1.4	- 9.2	- 8.2	-10.8	- 6.8	12.8
3	-1.5	-1.4	- 0.5	- 5.0	+ 1.0	- 3.6	3.7
4	0.0	-1.9	+ 1.1	- 6.4	+ 1.1	- 4.5	4.6
5	+0.4	-2.6	- 2.0	- 0.3	- 2.4	+ 2.3	3.3
6	+0.8	-2.7	- 7.0	-11.8	- 7.8	- 9.1	12.0
7	-0.7	-2.4	- 4.4	- 2.7	- 3.7	- 0.3	3.7
8	+0.3	-2.5	- 7.8	-10.0	- 8.1	- 7.5	11.0
9	0.0	-2.8	- 9.4	+ 3.7	- 9.4	+ 6.5	11.5
10	+1.1	-2.6	-14.8	- 3.9	-15.9	- 1.3	16.0
Average	+0.2	-2.1	- 5.9	- 5.0	- 6.1	- 2.9	8.6

Burst No.	Distance from Index Point				Distance between Shot Holes		Extreme Spread
	1st Round		2nd Round		1 to 2		
	Hor	Vert	Hor	Vert	Hor	Vert	

## Test of Selected Setting for Test IV, Phase II

Fired in 2-round bursts from the standing position

Rifleman: Eller

1	+0.5	+0.5	+ 1.5	-11.1	+1.0	-11.6	11.6
2	-1.0	+1.0	- 0.6	- 8.5	+0.4	- 9.5	9.5
3	+0.3	+0.7	+ 3.4	- 7.8	+3.1	- 8.5	9.1
4	-1.5	+0.2	- 0.1	- 3.6	+1.4	- 3.8	4.1
5	+1.0	-0.5	- 1.9	-11.6	-2.9	-11.1	11.6
6	-0.1	+0.6	+ 0.9	- 6.8	+1.0	- 7.4	7.4
7	+0.5	+0.8	- 3.9	- 6.2	-4.4	- 7.0	8.3
8	-2.0	+0.8	- 0.6	- 9.8	+1.4	-10.6	10.7
9	+2.5	+1.2	+ 1.2	- 6.5	-1.3	- 7.7	7.8
10	+1.1	+0.1	- 2.9	-14.3	-4.0	-14.4	14.9
Average	+0.1	+0.5	- 0.3	- 8.6	-0.4	- 9.2	9.5

Rifleman: Staley

1	-0.6	-0.3	- 8.2	- 4.9	-7.6	- 4.6	8.9
2	+0.3	-0.9	- 9.1	- 5.5	-9.4	- 4.6	10.5
3	-0.3	0.0	- 8.7	- 6.4	-8.4	- 6.4	10.5
4	-0.4	-0.2	- 6.3	- 4.4	-5.9	- 4.2	7.3
5	-0.6	-0.2	- 5.0	- 5.6	-4.4	- 5.4	6.9
6	-0.1	+0.1	- 6.2	- 6.7	-6.1	- 6.8	9.1
7	-1.4	-0.6	-11.0	- 6.6	-9.6	- 6.0	11.3
8	+0.3	-0.3	- 7.9	- 7.1	-8.2	- 6.8	10.6
9	-0.3	+0.3	- 7.3	- 5.5	-7.0	- 5.8	9.1
10	+0.5	+0.1	- 7.0	- 6.8	-7.5	- 6.9	10.2
Average	-0.3	-0.2	- 7.7	- 6.0	-7.4	- 5.8	9.4

Rifleman: Keele

1	-0.4	-2.5	- 3.9	- 7.2	-3.5	- 4.7	5.9
2	+0.6	-3.6	+ 1.8	-11.6	+1.2	- 8.0	8.0
3	0.0	-2.4	- 2.1	- 5.9	-2.1	- 3.5	4.1
4	-1.2	-1.3	- 5.2	- 4.8	-4.0	- 3.5	5.4
5	-0.2	-2.7	- 4.5	- 8.4	-4.3	- 5.7	7.1
6	+0.9	-1.6	- 3.8	- 7.7	-4.7	- 6.1	5.6
7	-0.3	-1.9	- 2.3	- 7.5	-2.0	- 5.6	7.8
8	-0.1	-2.5	- 4.5	- 5.9	-4.4	- 3.4	5.6
9	0.0	-3.0	- 5.7	- 6.9	-5.7	- 3.9	7.0
10	+0.8	-1.6	- 2.0	- 4.7	-2.8	- 3.1	4.2
Average	0.0	-2.3	- 3.2	- 7.1	-3.2	- 4.8	6.1

Burst No.	Distance from Index Point				Distance between Shot Holes		Extreme Spread
	1st Round		2nd Round		1 to 2		
	Hor	Vert	Hor	Vert	Hor	Vert	

## Test of Selected Setting for Test IV, Phase II

Fired in 2-round bursts from the standing position

Rifleman: Connolly

1	-0.3	+0.3	-12.5	- 8.9	-12.2	- 9.2	15.3
2	-0.7	+0.8	-14.4	-16.8	-13.7	- 7.6	22.3
3	-0.5	+0.3	-12.8	-11.8	-12.3	-12.1	17.3
4	-0.5	+0.7	-11.4	-14.4	-10.9	-15.1	18.7
5	-0.6	-2.2	-12.0	-12.6	-11.4	-10.4	15.4
6	-0.6	-2.3	-11.8	-11.9	-11.2	- 9.6	14.8
7	-1.5	+0.9	-13.7	-14.3	-12.2	-15.2	19.5
8	-1.0	-0.8	- 9.4	-15.0	- 8.4	-14.2	16.5
9	-0.7	-0.5	-10.3	-10.9	- 9.6	-10.4	14.2
10	-0.8	-1.8	- 7.1	-18.6	- 6.3	-16.8	17.9
Average	-0.7	-0.5	-11.5	-13.5	-10.8	-13.1	17.2

Burst No.	Distance from Index Point				Distance between Shot Holes		Extreme Spread
	1st Round		2nd Round		1 to 2		
	Hor	Vert	Hor	Vert	Hor	Vert	

## Test of Special Muzzle Attachment with All Ports Open

Fired in 2-round bursts from the prone position

Rifleman: Crowther

1	-0.4	-2.3	- 4.6	+17.6	- 4.2	+19.9	20.4
2	-0.2	-1.8	- 2.6	+11.4	- 2.4	+13.2	13.5
3	-0.7	-2.2	+ 2.5	+18.6	+ 3.2	+20.8	21.0
Average							18.3

Rifleman: Eller

1	+0.8	-0.3	+ 1.8	+16.4	+ 1.0	+16.7	16.7
2	+1.2	-0.3	+ 1.9	+16.3	+ 0.7	+16.6	16.6
3	+1.1	-1.2	+ 2.7	+14.2	+ 1.6	+15.4	15.5
Average							16.3

<u>Burst No.</u>	<u>Distance from Index Point</u>				<u>Distance between Shot Holes</u>		<u>Extreme Spread</u>
	<u>1st Round</u>		<u>2nd Round</u>		<u>1 to 2</u>		
	<u>Hor</u>	<u>Vert</u>	<u>Hor</u>	<u>Vert</u>	<u>Hor</u>	<u>Vert</u>	
Rifleman: Staley							
1	+0.3	-0.7	- 0.4	+23.6	- 0.7	+24.3	24.3
2	-0.2	-0.5	- 1.5	+21.0	- 1.3	+21.5	21.6
3	+0.2	-0.4	- 0.3	+21.7	- 0.5	+22.1	22.1
						Average	22.7
Rifleman: Keele							
1	+0.9	-1.7	+ 1.1	+19.8	+ 0.2	+21.5	21.5
2	-0.2	-1.1	- 2.8	+18.1	- 2.6	+19.2	19.4
3	+1.1	-2.4	- 1.0	+19.4	- 2.1	+21.8	21.9
						Average	20.9
Rifleman: Connolly							
1	0.0	-0.1	- 6.0	+11.8	- 6.0	+11.9	13.4
2	-0.2	-0.8	- 9.0	+19.6	- 8.8	+20.4	22.2
3	-0.3	-0.7	-10.9	+20.6	-10.6	+21.3	23.8
						Average	19.8
Average for setting							19.6

Burst No.	Distance from Index Point				Distance between Shot Holes				Extreme Spread	Extreme Diameter		
	1st Round		2nd Round		3rd Round		1 to 3				2 to 3	
	Hor	Vert	Hor	Vert	Hor	Vert	Hor	Vert			Hor	Vert

Test of Special Muzzle Attachment with All Ports Open

Fired in 3-round bursts from the prone position

Rifleman: Crowther

1	+0.5	-3.2	+1.4	+20.0	-3.9	+20.6	-0.9	+23.2	-4.4	+23.8	-5.3	+0.6	24.2
2	0.0	-2.1	+5.7	+22.3	+10.2	+26.2	+5.7	+24.4	+10.2	+28.3	+4.5	+3.9	30.1
3	+0.1	-3.5	+1.5	+15.2	-7.7	+19.0	+1.4	+18.7	-7.8	+22.5	-9.2	+3.8	23.7
												Average	26.0

Rifleman: Eller

1	+1.0	-1.4	+3.2	+14.4	+10.3	+14.4	+2.2	+15.8	+9.3	+15.8	+7.1	0.0	18.3
2	0.0	-2.0	-0.3	+13.6	+2.1	+12.0	-0.3	+15.6	+2.1	+14.0	+2.4	-1.6	15.7
3	+1.1	-0.7	+0.4	+12.8	+3.5	+12.5	-0.7	+13.5	+2.4	+13.2	+3.1	-0.3	13.5
												Average	15.8

Rifleman: Staley

1	+0.1	-0.5	-0.1	+20.2	+1.1	+30.9	-0.2	+20.7	+1.0	+31.4	+1.2	+10.7	31.5
2	0.0	-0.4	-0.1	+19.1	+4.4	+29.8	-0.1	+19.5	+4.4	+30.2	+4.5	+10.7	30.6
3	+0.2	-0.6	-1.3	+21.5	+4.6	+32.8	-1.5	+22.1	+4.4	+33.4	+5.9	+11.3	33.6
												Average	31.9

Rifleman: Keele

1	-0.3	-1.2	0.0	+18.4	-2.2	+20.0	+0.3	+19.6	-1.9	+21.2	-2.2	+1.6	21.2
2	+0.7	-1.9	-0.9	+15.3	-5.1	+16.9	-1.6	+17.2	-5.8	+18.8	-4.2	+1.6	19.7
3	+0.6	-1.8	-2.7	+18.5	-9.2	+19.3	-3.3	+20.3	-9.8	+21.1	-6.5	+0.8	23.4
												Average	21.4

Burst No.	Distance from Index Point						Distance between Shot Holes						Extreme Spread	Extreme Diameter
	1st Round		2nd Round		3rd Round		1 to 2		1 to 3		2 to 3			
	Hor	Vert	Hor	Vert	Hor	Vert	Hor	Vert	Hor	Vert	Hor	Vert		
1	+0.1	-0.4	-4.2	+19.8	-8.5	+39.7	-4.3	+20.2	-8.6	+40.1	-4.3	+19.9	40.9	40.9
2	-0.1	-0.3	-4.5	+24.0	-8.3	+48.4	-4.4	+24.3	-8.2	+48.7	-3.8	+24.4	49.3	49.3
3	0.0	-0.5	-7.6	+20.3	-10.4	+35.7	-7.6	+20.8	-10.4	+36.2	-2.8	+15.4	37.7	37.7
Average for setting													42.6	27.5

Rifleman: Connolly

FJ - Failure to eject  
 FX - Failure to extract  
 SAT - Satisfactory

## Function Reports

## Legend

A - Automatic

BOE - Bolt overrode base of round in feeding from magazine

EJ - Failure to eject

FX - Failure to extract

SAT - Satisfactory

<u>Time</u>	<u>No. Rds Fired</u>	<u>Total No. of Rds Fired on Test</u>	<u>Type Fire</u>	<u>Function</u>	<u>Rifleman</u>
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Rifle, caliber .223, AR15, No. 8271, equipped with special muzzle attachment.

Cartridge, ball, caliber .223, lot RA-5024 Z01M

Date Fired: 16 March 1963

0815 to 0845	30	30	A	SAT	Staley
0845 to 0930	20	50	A	SAT	Eller
0931 to 1000	20	70	A	SAT	Keele
1000 to 1015	6	76	A	SAT	Crowther
1015 to 1025	6	82	A	SAT	Eller
1015 to 1025	6	88	A	SAT	Crowther
1025 to 1050	20	108	A	SAT	Eller
1025 to 1050	20	128	A	SAT	Crowther
1050 to 1105	20	148	A	SAT	Eller

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<u>Time</u>	<u>No. Rds Fired</u>	<u>Total No. of Rds Fired on Test</u>	<u>Type Fire</u>	<u>Function</u>	<u>Rifleman</u>
1050 to 1105	20	168	A	SAT	Crowther
1112 to 1145	58	226	A	SAT	Staley
1242 to 1305	46	272	A	SAT	Keele
1305 to 1332	18	290	A	SAT	Crowther
1333 to 1350	15	305	A	SAT	Keele
1405 to 1416	15	320	A	SAT	Staley
1418 to 1445	21	341	A	SAT	Eller
1505 to 1512	9	350	A	SAT	Eller
1505 to 1512	9	359	A	SAT	Staley
1517 to 1540	30	389	A	SAT	Eller
1517 to 1540	30	419	A	SAT	Staley
1541 to 1545	9	428	A	Sat	Crowther
1546 to 1607	30	458	A	SAT	Crowther
1621 to 1635	9	467	A	SAT	Keele
1635 to 1645	9	476	A	SAT	Keele

<u>Time</u>	<u>No. Rds Fired</u>	<u>Total No. of Rds Fired on Test</u>	<u>Type Fire</u>	<u>Function</u>	<u>Rifleman</u>
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The rifle was disassembled, cleaned and lubricated.

Date Fired: 17 March 1963

0740 to 0800	30	506	A	SAT	Keele
0805 to 0835	30	536	A	SAT	Crowther
0805 to 0835	30	566	A	SAT	Keele
0845 to 0905	30	596	A	SAT	Staley
0845 to 0905	30	626	A	SAT	Eller
0910 to 0925	6	632	A	SAT	Eller
0910 to 0925	6	638	A	SAT	Staley
0910 to 0925	6	644	A	SAT	Crowther
0910 to 0925	6	650	A	SAT	Keele
0930 to 0940	6	656	A	SAT	Staley
0930 to 0940	6	662	A	SAT	Eller
0930 to 0940	6	668	A	SAT	Crowther
0930 to 0940	6	674	A	SAT	Keele

<u>Time</u>	<u>No. Rds Fired</u>	<u>Total No. of Rds Fired on Test</u>	<u>Type Fire</u>	<u>Function</u>	<u>Rifleman</u>
0945 to 1005	6	680	A	SAT	Staley
0945 to 1005	6	686	A	SAT	Eller
0945 to 1005	6	692	A	SAT	Crowther
0945 to 1005	6	698	A	SAT	Keele

The rifle was disassembled, cleaned and lubricated.

Date Fired: 18 March 1963

0900 to 1050	92	790	A	SAT	Connolly
1100 to 1130	6	796	A	SAT	Keele
1100 to 1130	6	802	A	SAT	Staley
1100 to 1130	6	808	A	SAT	Eller
1100 to 1130	6	814	A	SAT	Crowther
1250 to 1435	93	907	A	SAT	Connolly
1445 to 1510	20	927	A	SAT	Connolly
1445 to 1510	20	947	A	SAT	Keele

<u>Time</u>	<u>No. Rds Fired</u>	<u>Total No. of Rds Fired on Test</u>	<u>Type Fire</u>	<u>Function</u>	<u>Rifleman</u>
1527 to 1550	20	967	A	SAT	Staley
1527 to 1550	20	987	A	SAT	Eller
1555 to 1628	20	1007	A	SAT	Crowther
1555 to 1628	20	1027	A	SAT	Staley
1555 to 1628	20	1047	A	SAT	Eller
1630 to 1640	9	1056	A	SAT	Eller
1630 to 1640	10	1066	A	BOB	Staley
1643 to 1650	9	1075	A	SAT	Eller
1643 to 1650	9	1084	A	SAT	Staley
1650 to 1705	9	1093	A	SAT	Crowther
1650 to 1705	9	1102	A	SAT	Connolly
1708 to 1715	9	1111	A	SAT	Crowther
1708 to 1715	9	1120	A	SAT	Connolly
1723 to 1732	18	1138	A	SAT	Keele
1745 to 1800	30	1168	A	SAT	Connolly

<u>Time</u>	<u>No. Rds Fired</u>	<u>Total No. of Rds Fired on Test</u>	<u>Type Fire</u>	<u>Function</u>	<u>Rifleman</u>
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The rifle was disassembled, cleaned and lubricated.

Date Fired: 19 March 1963

0725 to 0800	30	1198	A	SAT	Connolly
0725 to 0800	30	1228	A	SAT	Crowther
0810 to 0840	30	1258	A	1-FJ	Connolly
0810 to 0840	30	1288	A	SAT	Crowther
0900 to 0945	20	1308	A	1-FJ	Crowther
0900 to 0945	20	1328	A	1-FJ, 1-FX	Connolly, The extractor spring was broken. It was replaced.
0900 to 0945	20	1348	A	SAT	Keele
0950 to 1005	15	1363	A	SAT	Connolly
0950 to 1005	15	1378	A	SAT	Crowther
1015 to 1020	15	1393	A	SAT	Keele
1030 to 1055	30	1423	A	SAT	Keele
1100 to 1130	30	1453	A	SAT	Staley
1100 to 1130	30	1483	A	SAT	Eller
1130 to 1150	30	1513	A	SAT	Staley

<u>Time</u>	<u>No. Rds Fired</u>	<u>Total No. of Rds Fired on Test</u>	<u>Type Fire</u>	<u>Function</u>	<u>Fifleman</u>
1130 to 1150	30	1543	A	SAT	Eller
1240 to 1250	15	1558	A	SAT	Staley
1240 to 1250	15	1573	A	SAT	Eller

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