NRA Target Rifle Target Dimensions Review

1. Summary

The Bull at 600 yds was last reduced in size in 1995. The Bull at 200, 300, 400 & 500yds has not changed since 1988, and the Bull on the Long Range target has not changed since 1974. In the 22 years since any Bull dimension was last changed, 155 grain bullets have replaced 144 grain, ammunition has improved, rifles have improved, eagle eyes have been allowed and shooter skills have probably improved. Scores have progressively increased and are now very bunched in the 48 to 50 region, and the percentage of possibles being scored has also steadily risen. The UK has the largest scoring rings in the target rifle shooting world.

The Target Dimensions Working Group has defined 12 Objectives that the recommended set of target dimensions should attempt to satisfy.

The scores from 74,483 individual 10 and 15 round shoots fired during the Imperial Meetings from 2010 to 2016 inclusive, and 12,925 individual 10 round shoots fired on Hexta electronic targets, have been analysed. This analysis has quantified the effects of different target dimensions on UK shooters' average scores, percentage of possibles, average V counts and percentage of 50.10s at each distance, for 10 different UK shooter skill levels and in a variety of different weather conditions (easy, average and difficult).

This has allowed a set of target dimensions that best satisfies the Objectives to be defined (table below). These are recommended for adoption. The Working Group recommendation is that the Long Range target remains unchanged for now, although an alternative set of dimensions for the Long Range target is offered should a change be considered appropriate. For consistency with other countries, the ICFRA aiming marks have been proposed at all short ranges (and for the Alternative Long Range target).

Proposed Target Rifle Target Dimensions	Diameter - mm					
	V	5	4	3	2	1
Current 200	53.3	88.9	177.8	266.7	406.4	1168.4
Proposed 200	48.0	80.0	160.0	240.0	360.0	1168.4
Current 300	83.8	139.7	279.4	419.1	558.8	1168.4
Proposed 300	75.0	125.0	250.0	375.0	560.0	1168.4
Current 400	121.9	203.2	406.4	609.6	812.8	ROT
Proposed 400	105.0	175.0	350.0	525.0	745.0	ROT
Current 500	160.0	266.7	660.4	990.6	1320.8	ROT
Proposed 500	138.0	230.0	460.0	915.0	1320.0	ROT
Current 600	198.1	330.2	660.4	990.6	1320.8	ROT
Proposed 600	174.0	290.0	580.0	915.0	1320.0	ROT
Current Long Range	365.8 (14.4")	609.6 (24")	1219.2 (48")	1828.8 (72")	2438.4 (96")	ROT
Props'd Long Range	365.8 (14.4")	609.6 (24")	1219.2 (48")	1828.8 (72")	2438.4 (96")	ROT
Alternative Long Range	351.0 (13.8")	585.0 (23")	1120.0 (44")	1830.0 (72")	2440.0 (96")	ROT

ROT = Rest of Target (as current) Shaded cells are coincident with the aiming mark.

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3. Why do the target dimensions need to be reviewed?

Since the introduction of 7.62 mm calibre to replace the old .303" for target rifles in 1966, the dimensions of the scoring rings on NRA targets have been adjusted in 1968, 1972, 1973, 1974, 1978, 1988, 1992, 1995 and 1998. Full details of the changes are given in Annex A. Most of these changes have been minor or limited in scope, but significant changes were made in 1974 (bullseye reduced at all distances), 1988 (bullseye reduced at all short range distances) and 1995 (Hit introduced and Inner, Magpie and Outer revised at all distances, but no changes to the Bull or V Bull except for a small reduction in the Bull at 600 yds). Other than a small reduction in the size of the V Bulls in 1998, Target Rifle target dimensions have not changed since 1995. The Bull at 200, 300, 400 & 500yds has not changed since 1988, and the Bull on the Long Range target has not changed since 1974.

In the 22 years since any Bull dimension was last changed, 155 grain bullets have replaced 144 grain, superior RUAG and now GGG ammunition have replaced RG, rifles have improved, eagle eyes have been allowed and it is quite probable that shooter skills have improved as well, thanks to a better understanding of shooting techniques helped by training aids such as Scatt.

The UK currently has the largest scoring rings of any targets used in the Target Rifle shooting world, with the exception of the USA 300 yds Bull (all other rings are smaller) and the South African 500 m Bull and V Bull (where they use the unmodified 600 m target). Although Canada generally has the same size target dimensions as the UK, their V Bulls are half (0.5x) the Bull diameter, rather than the UK's 0.6x, and their Long Range target is only 8ft wide, in common with all countries other than the UK (10ft wide) and the USA (6ft square). Relative target dimensions in various countries are detailed in Annex B in inches, effective Minutes of Arc (MoA) (including allowance for the width of the bullet and inwards gauging) and graphically.

Scores have certainly progressively increased and are now very bunched in the 48 to 50 region, as illustrated in Figure 1, Figure 2 and Figure 3, which represent the scores made in various Imperial Meeting competitions at 300, 600 & 900 yds over the past 5 years. (The different coloured bands indicate the proportion of scores with various numbers of V Bulls.)

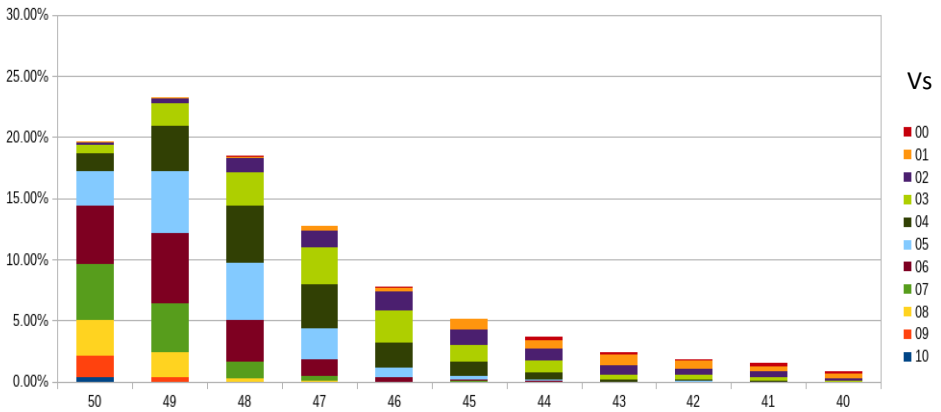


Figure 1 – 300 yds Times Scores 2012-2016

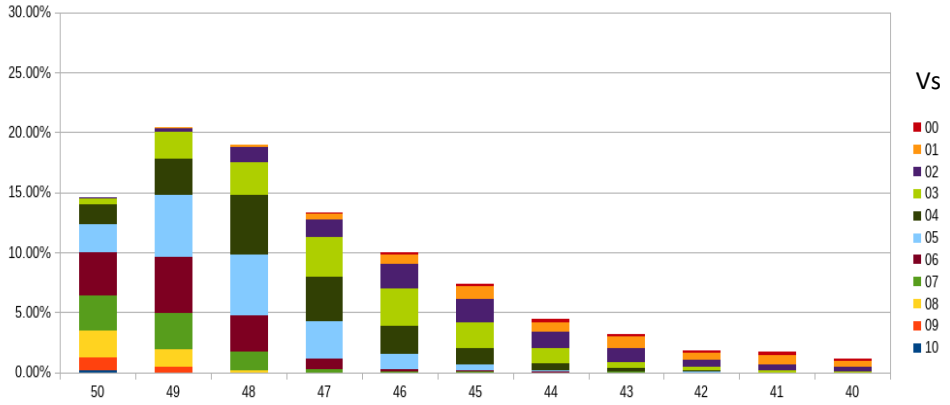


Figure 2 – 600 yds Alexandra Scores 2012-2016

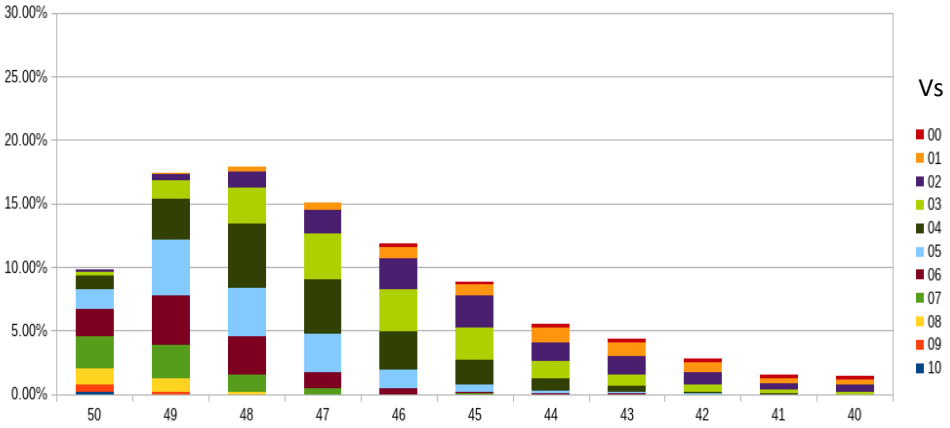


Figure 3 – 900 yds Conan Doyle Scores 2012-2016

A score that would have won you the Grand Aggregate in 1974 (an average of 47.5 across all shoots) will barely put you in the top half of the whole entry today, despite shooting at smaller Bulls. Dropping a point in any competition will take all X and A class well off most prize lists, and dropping more than 3 points in the whole Imperial Meeting Grand Aggregate (ex 705) severely limits your likelihood of winning in most years, with little chance of recovery. The average scores (normalised to be out of 50 and excluding V Bulls) of the winner, 50th, 100th and 200th placed shooters in the Imperial Meeting Grand Aggregate over the years since 1974 are shown in Figure 4. This shows how scores have steadily improved over time, despite the target dimension changes (in 1974, 1988 & 1995) and changes to the content of the Grand Aggregate (the Daily Telegraph and Daily Mail were increased to 15 rounds in 1998 and an extra 900 yds shoot was added in 1999). The weather conditions for the meeting generally only have a small impact on the scores (difficult days and easy days generally average out over the 6 days of the Grand Aggregate), but the impact of the variable quality of RG ammunition is evident in 2005 & 2008 (and possibly 1996 & 1999).

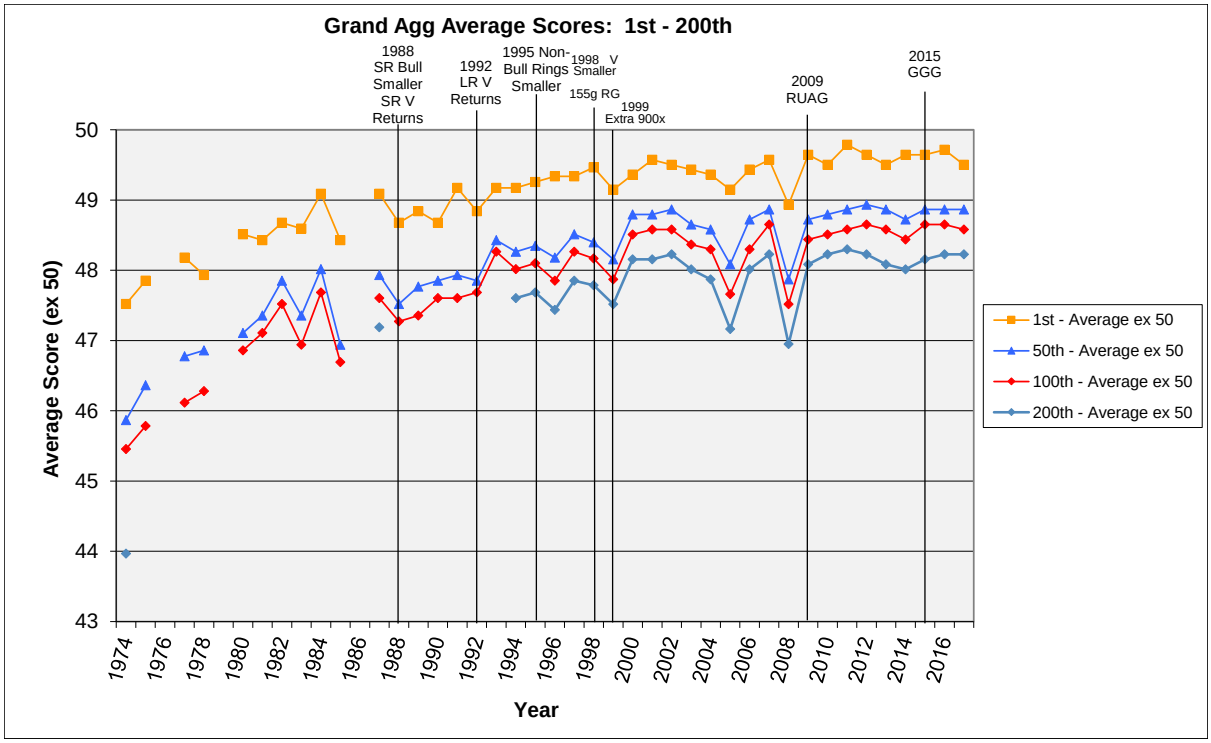


Figure 4 – Grand Aggregate Average Scores 1974-2017

In the past (up until the last change in 1995), the basis of setting target dimensions was to try to keep the proportion of possibles in Imperial Meeting competitions at around 1¾% of the entry. Scoring a possible was a real achievement and often celebrated. In some 300 yds competitions in recent years, over 20% of the entry have scored possibles (24% in the 2015 Times and 2017 Donegall). In the 300 yds Donegall competition in 2017 there were only 5 scores of 50.10, but 7 scores of 50.8 did not make it onto the prize list. The 2015 Times competition was similar. The percentage of the entry scoring a possible in the Imperial Meeting competitions has steadily increased over the years, as shown in Figure 5.

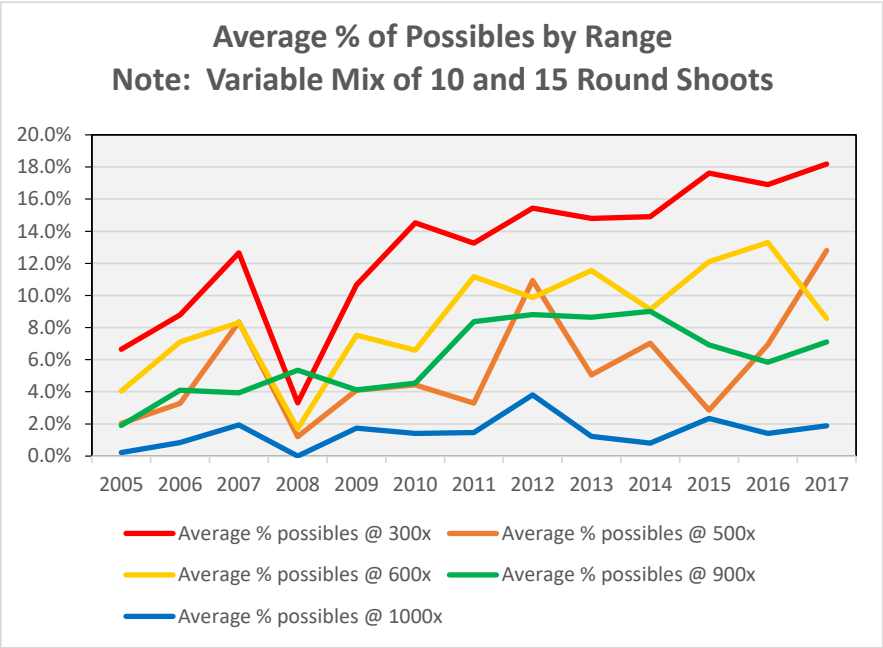


Figure 5 – Change in Percentage Possibles 2005-2017

Scoring a possible has now become the expectation, and failure to do so often leads to a sense of disappointment. Many shooters know that they can fire a poor shot and still expect it to stay in the Bull. Knowing that poor shots will be punished encourages tighter shooting. Those who have shot on the smaller ICFRA targets know that, and work hard to reduce the number of poor shots: a subsequent return to UK targets makes shooting feel easy, but groups gradually relax and soon expand back to the size of the larger bull. After previous reductions in the size of the Bull, scores have always returned to their previous levels within a few years, as people improve their grouping to match the smaller Bull size.

As a comparison, the relative sizes of the ISSF 300m target and the NSRA 25 yds smallbore target in effective MoA are shown below the 300 yds target sizes in the Effective MoA section of Annex B. For most smallbore shooters, scoring a possible is a relatively infrequent occurrence: the relatively small size of the smallbore Bull (fractionally larger than the current 300 yds V Bull) indicates why.

Change is long overdue. Many current Target Rifle shooters (all those who have been shooting for less than 22 years) have never known the target dimensions to change.

4. The Target Rifle Target Dimensions Review

In September 2016 the NRA Shooting Committee tasked the Target Rifle Discipline Representative (Charles Dickenson) with reviewing target dimensions. A Target Dimensions Working Group was formed of the following people:

Charles Dickenson (Target Rifle Discipline Representative) – Chairman
Bill Richards (developer of NRA Imperial Meeting scores software and statistics specialist)
Paul Wheeler (database specialist)
John Fennell (O class club shooter representative and Historic weapons target analyst)
Iain Robertson (ICFRA Target Rifle Committee Chairman)
Alex Cargill-Thompson (Match Rifle Discipline Representative)

5. Objectives of the Target Rifle Target Dimensions Review

The Target Dimensions Working Group's first step was to identify a set of objectives that the target dimensions should seek to satisfy. These objectives are listed below, in no particular order. Some of the main issues and additional comments associated with these Objectives are listed in Annex C.

Each objective was also scored by the Working Group for the importance of it being satisfied by the proposed target dimensions set, to produce a weighting on a scale of 0 (unimportant) to 10 (essential). These weightings are listed below and in Annex C.

	Objective	**Weight**
1.	Move towards standardising target dimensions throughout the Target Rifle shooting world.	3
2.	Spread out scores.	8

	Objective	Weight
3.	Penalise poor shots to encourage better shooting.	8
4.	Ensure that bull dimensions (in effective minutes of arc - i.e. including allowance for the width of the bullet and inwards gauging) increase uniformly with distance by a rate that is more than linear, to allow for the increasing difficulty of judging and allowing for the wind, but not by too much, so that the probability of scoring a possible still decreases with increasing distance.	8
5.	Limit tie shoots to a manageable number and scale (typically 2 to 5 shooters, and very rarely more than 6).	5
6.	Standardise aiming mark sizes across the distances.	2
7.	Minimise the number of different target faces required.	6
8.	Avoid significant numbers of shooters quitting the sport due to it being too difficult to obtain a good score.	8
9.	Avoid deep pockets providing disproportionate advantage.	7
10.	Retain (reinforce) the spirit of Target Rifle.	8
11.	Long Range target dimensions must be acceptable to Match Rifle shooters.	8
12.	Eliminate the conundrum of whether to cut ordinary bull sighters in a competition in order to have the chance of winning the competition, or not cut in order to preserve the score for aggregates.	2

6. Potential Solution Options

The Working Group identified a number of possible solution options to focus the study, and assessed the pros and cons of each option and how well each of the options satisfied each of the Objectives. The pros and cons of each option are detailed in Annex D, where the numbers in brackets refer to the Objective number(s) affected by the comment.

	Option
1.	Do Nothing.
2.	Adopt ICFRA target dimensions for specific matches (e.g. National, Mackinnon, Inter-Counties, Ages), but keep current dimensions for other competitions.
3.	Adopt ICFRA target dimensions for specific matches (e.g. National, Mackinnon, Inter-Counties, Ages) and the Imperial Meeting individual TR competitions, but keep current dimensions for other competitions/club shooting and MR.
4.	Adopt ICFRA target dimensions at short ranges and a compromise dimension (e.g. 22" or 23" bull, 40" or 44" inner) at long range.
5.	Adopt ICFRA target dimensions at all distances.
6.	At distances for which ICFRA targets are not adopted, reduce the size of the V Bull only, keeping other scoring rings unchanged. V Bull dimension to be determined

	Option
	(between 0.5 and 0.6 times Bull dimension).
7.	At distances for which ICFRA targets are not adopted, reduce the size of the Bull only, keeping the V Bull and other scoring rings unchanged. Bull dimension to be determined.
8.	At distances for which ICFRA targets are not adopted, reduce the size of the Bull and V Bull only, keeping other scoring rings unchanged. Bull and V Bull dimensions to be determined (V Bull between 0.5 and 0.6 times Bull dimension).
9.	At distances for which ICFRA targets are not adopted, reduce the size of all scoring rings. All ring dimensions to be determined (Bull, Inner and Magpie to be sequential whole number multiples of V Bull dimension).
10.	At distances for which ICFRA targets are not adopted, reduce the size of all scoring rings. All ring dimensions to be determined (Inner and Magpie to be sequential whole number multiples of Bull dimension).
11.	At distances for which ICFRA targets are not adopted, reduce the size of all scoring rings. All ring dimensions to be determined (Inner and Magpie may be more or less than whole number multiples of Bull dimension and determined on the basis of what best meets the objectives, with rings not necessarily equally spaced).
12.	Move to outward gauging on current NRA targets.

The suitability and efficacy of options 6-11 is very dependent on the target dimensions selected, so the analysis concentrated on quantifying the effects of different target dimension sets to determine dimensions that best satisfied as many of the objectives as possible (as described in section 7). The pros and cons for options 6-11 listed in Annex D are based on the recommended dimensions set.

In section 8 each of these options is scored as to how well it satisfies each of the objectives and a weighted total for each option is determined as the basis of selecting the recommended option.

7. Determination of the Optimum Target Dimensions

7.1 Analysis Approach

There are two options to determining the optimum target dimensions: theoretical (based on the theory of shot distribution) or empirical (based on practical trials). The size of trials necessary to obtain sufficient data to determine optimum target dimensions with any degree of confidence would be enormous, and therefore prohibitive in terms of both time and cost.

There is, fortunately, now sufficient data available in electronic format from two independent sources that can be used both to assess the empirical effects of different target dimensions and to support theoretical analysis, without any need for further trials:

1. The x and y coordinates of every shot fired on Hex Systems Hexta electronic targets have been recorded. This allows the actual scores that would have been achieved

with scoring rings of various different dimensions to be determined. It is the equivalent to undertaking a very large trial covering all possible dimension options.

2. All the scores made in individual Target Rifle competitions on current NRA targets during past Imperial Meetings are available, dating back to 1999. The scores are suitable for deriving the theoretical shot distribution (standard deviation) of shooters of different skill levels and in weather conditions of varying difficulty, from which the probability of scoring a possible on targets of different sizes can be determined.

Hex Systems have kindly made 2 years' worth of Target Rifle data available for analysis, comprising some 27,755 shoots of varying numbers of shots, from which all the 10 round shoots fired at yard (not metric) distances have been selected. This analysed data set comprises a total of 12,925 individual 10 round shoots fired on ICFRA targets, by shooters of all abilities at 36 different locations, mostly in Australia, and in a variety of different weather conditions.

The Imperial Meeting data from the seven years 2010 to 2016 inclusive was used (years when high quality RUAG and subsequently GGG ammunition has been used). This data comprises the scores from 74,483 individual 10 and 15 round shoots fired at Bisley on the current NRA targets, by shooters of all abilities and in a variety of weather conditions.

7.2 Preparation of the Data

The class system of both the UK (X, A, O, T) and Australia (A, B, C) is very coarse and not a particularly good indicator of shooter ability. Consequently an alternative ranking was used that split shooters into 10 skill levels. Both sets of data were analysed and each individual shooter was ranked on the basis of their average scores at each distance shot. The overall ranking of the shooters was based on each shooter's average ranking across all distances. The scores in each data set were listed in the order of the ranking of the shooter that shot them. Each data set was then divided into 10 roughly equal sized sets of scores, based on the ranking of the shooters, such that the shooters whose scores made up the top 10% were designated Skill Level 1, those whose scores made up the second 10% were designated Skill Level 2, and so on down to Skill Level 10.

For the Imperial Meeting data, each separate competition was also classified as shot in Easy, Average or Difficult conditions, based on the scores distribution in that competition. Roughly 25-30% of the competitions were designated Easy, a similar proportion were designated Difficult and the remainder were designated as Average.

For the Hex Systems data, the difficulty of a particular day at a specific location was determined by calculating the average ovality of all the shoots fired at that location on that date. The ovality is a measure of how much larger the lateral group is than the vertical group, calculated as the Root Mean Square (RMS) of all x coordinates in a shoot divided by the RMS of all y coordinates. The dates and locations with the 30% smallest average ovality were designated as Easy, the 30% largest average ovality were designated as Difficult and the remaining 40% were designated as average.

For each set of data, the following statistics have been derived:

1. At each distance, the average base score (excluding Vs), overall and for each Skill Level, in each of the 3 weather conditions and across all weather conditions. (The UK Imperial Meeting data are the red scores under the heading 'NRA' in Annex E.)
2. At each distance, the percentage of scores that were 10 shot possibles (50 ex 50), overall and for each Skill Level, in each of the 3 weather conditions and across all weather conditions. (The UK Imperial Meeting data are the red values under the heading 'NRA' in Annex F.)
3. At each distance, the average V count, overall and for each Skill Level, in each of the 3 weather conditions and across all weather conditions. (The UK Imperial Meeting data are the red scores under the heading 'NRA' in Annex H.)
4. At each distance, the percentage of scores that were 10 V possibles (50.10 ex 50.10), overall and for each Skill Level, in each of the 3 weather conditions and across all weather conditions. (The UK Imperial Meeting data are the red values under the heading 'NRA' in Annex I.)

7.3 Effect of Target Dimension Changes on Average Scores

The x and y coordinate information for each shot in the Hex Systems data allows determination of the scores that would have been achieved if each shoot had been conducted on a target of different dimensions. 21 sets of target dimensions were compiled, taking the sizes of the V Bull, Bull and other scoring rings from larger than the current NRA targets to smaller than the ICFRA targets, in order to quantify the effects on scores as the target dimensions change. For this analysis, the effect on V count was assessed separately from the effect on base score (the score without Vs), as described in section 7.9. This allows the size of the optimum V Bull to be determined independently from the size of the optimum Bull and other rings.

For simplicity and greater precision, the scoring ring sizes were defined in millimetres (the unit used for defining the ICFRA target dimensions). The range of Bull dimensions used at each distance are listed in the top 3 rows of each table in Annex E and Annex F (in inches, millimetres and effective MoA). Similarly the range of V Bull dimensions used at each distance are listed in the top 3 rows of each table in Annex H and Annex IAnnex F.

For the purposes of this analysis, at all distances, the aiming mark dimension adopted was the ICFRA aiming mark and this dictated the size of the Outer at 300 yds, the Magpie at 500 & 600 yds and the Inner at long range. (The working group agreed very early in its deliberations that the Inner and Magpie on the ICFRA long range target are too tight for general use in the UK and agreed that, at long range, whatever size Bull was proposed, an Inner that extends to the edge of the aiming mark would be adopted, as it is on the current NRA targets and as recommended by Phil Harrison (former Secretary General of ICFRA) and as adopted by South Africa.) For this analysis, scoring rings outside the black were unchanged from the current NRA targets (which, other than the Hit on the long range target, are coincident with ICFRA scoring rings) and scoring rings inside the black were all set as whole number multiples of the Bull diameter.

Using the Hex Systems x and y coordinate data, the score for each shot was evaluated against each of the 21 sets of target dimensions to determine a base score and V count for

each 10 shot series. From all these individual scores, the average score and average V count that would have been achieved at each skill level and in each weather condition on the current NRA target dimensions were determined.

As expected, some differences were apparent between the UK and Australian average scores at the same nominal skill level. Probable reasons for the differences are the Australian use of handloads, string shooting (which can be even faster on the electronic targets used to record the data), ICFRA targets (which encourage tighter grouping), more benign weather and/or different shooter demographics. Despite these differences, the way in which average scores change with varying target dimensions will be essentially the same for any set of data that achieves the same average score at the same distance and target dimensions and in similar weather conditions. It is therefore statistically sound to treat the Australian data that generates the same average score at the current NRA target dimensions as a scatter of shots with a distribution that matches that of the Imperial Meeting shooters.

By matching the Australian average scores to the average scores from the UK Imperial Meeting data, it was possible to determine how the UK average scores would vary across the 21 different sets of target dimensions. These UK average scores were compiled into a series of tables, shown in Annex E (base scores) and Annex H (V count).

From these tables a series of graphs were generated (Annex G and Annex J). Examples are shown below in **Error! Reference source not found.** (base score) and **Error! Reference source not found.** (V count).

The graphs show how the average scores (**Error! Reference source not found.**) and average V counts (**Error! Reference source not found.**) vary with changes to the diameter of the Bull (and other scoring rings inside the black) (**Error! Reference source not found.**) or V Bull (**Error! Reference source not found.**) for each of the 10 skill levels. The current NRA target dimensions are shown on the graph as a vertical dashed black line. The overall (all skill levels) average score from the Imperial Meeting data is shown as a green cross on this line. The ICFRA target dimensions are shown on the graph as a vertical dashed blue line. The proposed revised NRA target dimensions are shown on the graph as a vertical dashed orange line. Also shown on the graphs as solid green lines are the percentage of possibles (**Error! Reference source not found.**) and 10 V possibles (**Error! Reference source not found.**) computed from the UK Imperial Meeting data as described in section 7.4 and tabulated in Annex F (base score possibles) and Annex I (50.10s) (these percentage possibles relate to the right hand scale on the graphs).

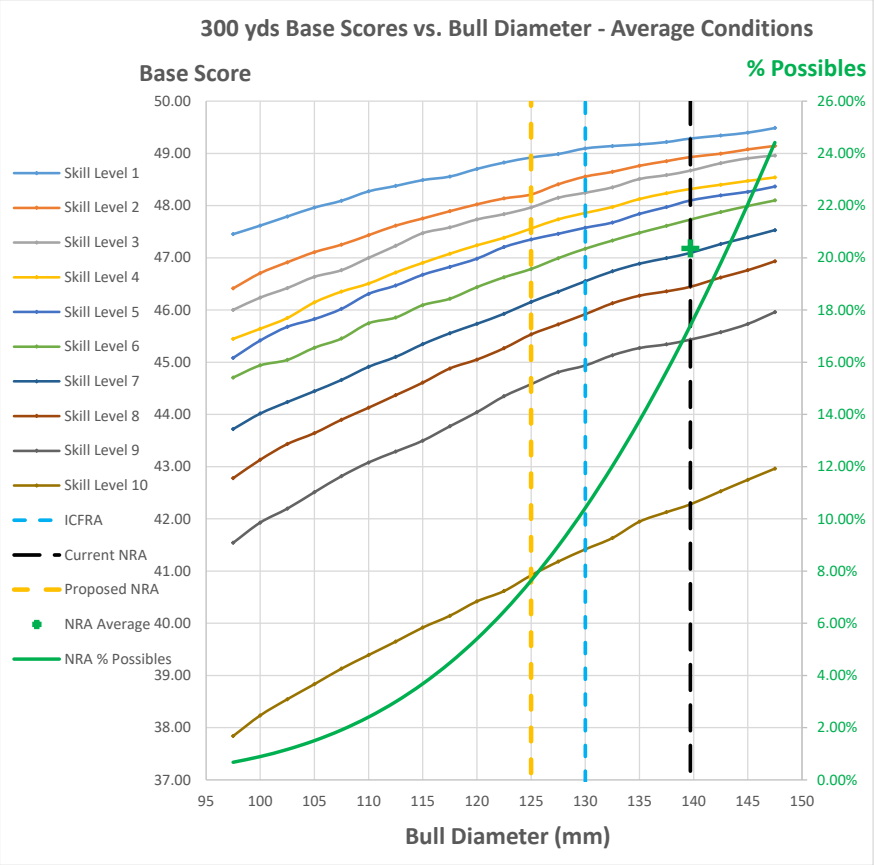


Figure 6 – Typical Graph of Base Score Variation with Bull Diameter

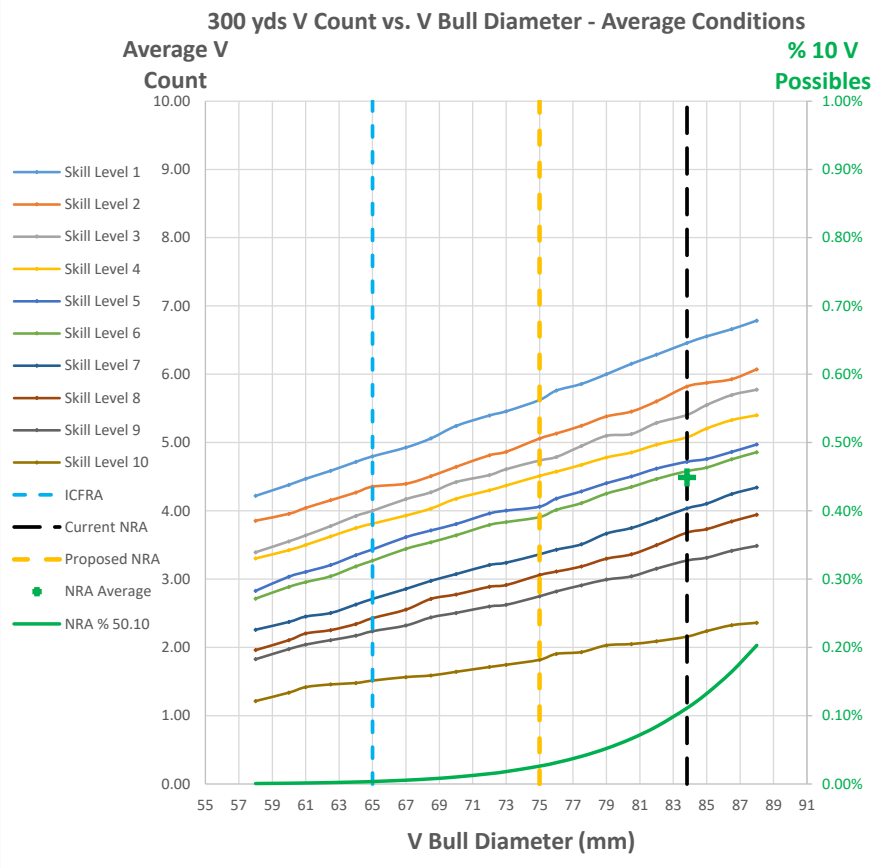


Figure 7 –Typical Graph of V Count Variation with Bull Diameter

7.4 Effect of Target Dimension Changes on UK Percentage Possibles

From the Imperial Meeting data it is possible to use the percentage of possibles scored to calculate the Standard Deviation (sigma) for the shot distribution. Given this sigma, it is then possible to calculate the theoretical probability of scoring a possible with a Bull of different diameters, and similarly the probability of scoring a 50.10 with V Bulls of different diameters.

The sigma for each skill level has been determined from the Imperial Meeting data for each distance and each weather condition. These sigmas have been used to generate the probabilities of scoring a possible in the table in Annex F and also the probabilities of scoring a 10 V possible in the table in Annex I.

7.5 Key Factors in Determining the Optimum Set of Target Dimensions

In determining the optimum set of target dimensions that would best satisfy the Objectives, a number of key factors were kept in mind:

1. The target dimensions should be consistent across all distances, such that the Bull dimensions (in effective MoA) increase uniformly with distance by a rate that is more than linear (i.e. slightly exponential), to allow for the increasing difficulty of judging and allowing for the wind, but not by too much, so that the probability of scoring a possible progressively decreases with increasing distance (Objective 4).
2. Reducing the percentage of possibles to 1¾% is too drastic and would likely result in many shooters giving up the sport. A more realistic level was agreed that the percentage of possibles should be in the range 7-10% at 300 yds, 3-5% at 500, 600 & 900 yds and no lower than 1% at 1000 yds. The current levels are 17.7% at 300 yds, 15.6% at 500 yds, 10.9% at 600 yds, 7.8% at 900 yds and 1.9% at 1000 yds.
3. The V Bull should probably be in the range of 0.5 to 0.67 times the diameter of the Bull. It should be possible to score a 50.10 by skill rather than by luck.
4. The Long Range target is common to all ranges from 800 yds to 1200 yds, so inevitably scores and the percentage of possibles will be higher at 900 yds than at 1000 yds. The dimensions of the Long Range target are always going to be a compromise between higher than desired scores at 900 yds and lower than desired scores at 1000 yds.
5. Using an Inner that is the same physical size at 500 yds as it is at 600 yds makes the 500 yds Inner disproportionately large (2.5 times the Bull diameter on current NRA targets, compared with 2 times at all other distances) and fails to meet Objective 3 (penalising poor shots). If possible, the replaceable centres used to change targets from 500 yds to 600 yds should include the Inner as well as the Bull.

The effect on percentage possibles and average scores of a Bull that subtends the same angle (effective MoA) at all distances is illustrated in Figure 8. Both the percentage of possibles and average scores drop off very rapidly as distance increases with a constant sized Bull.

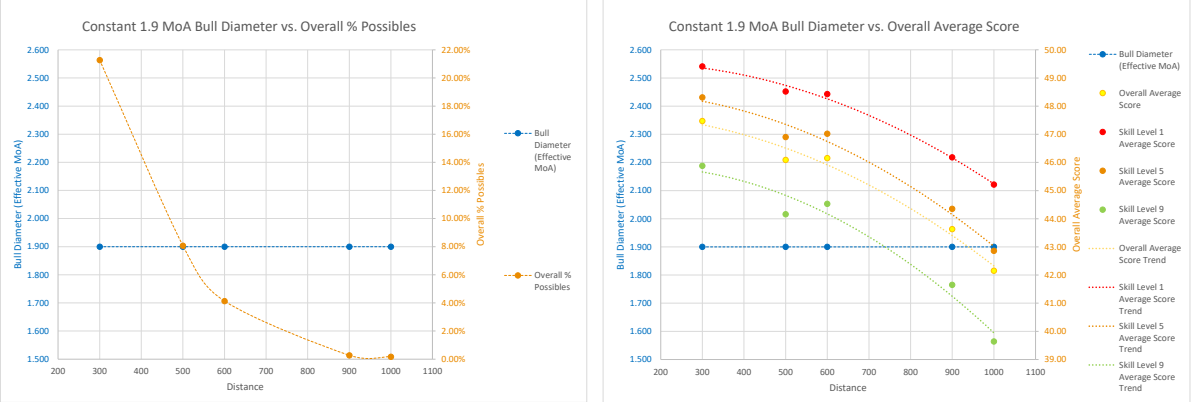


Figure 8 – Effects of Constant Bull Diameter at All Distances

Conversely, the Bull diameter that would be required to achieve a steady percentage of possibles at all distances (5% in this case) is shown in the left hand graph of Figure 9. Note that the right hand graph shows that even in this case (constant percentage of possibles), average scores fall as distance increases. To achieve constant scores at all distances, the size of the Bull would have to increase even more with increasing distance. It was considered inappropriate to expect constant scores or a constant percentage of possibles with increasing distance, as the main challenge of Target Rifle is to master the wind at longer distances.

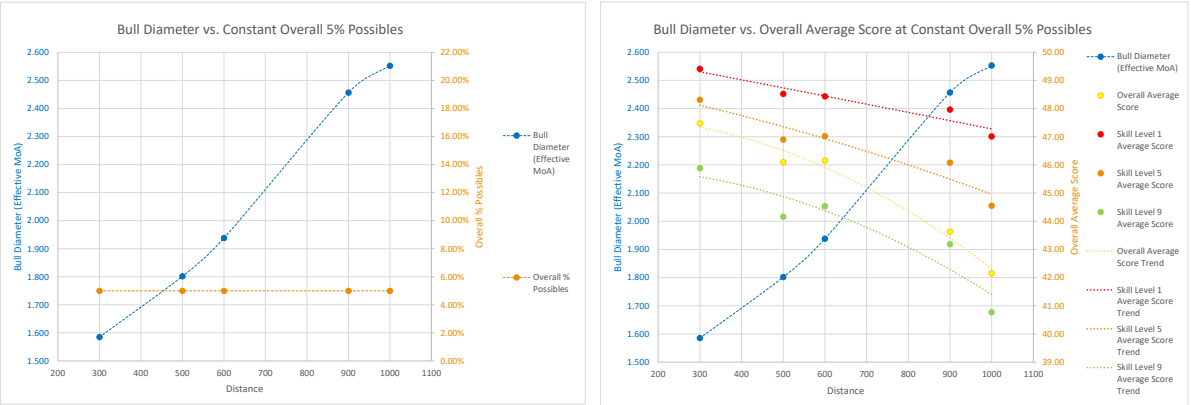


Figure 9 – Bull Diameter for Constant 5% of Possibles at All Distances

Ideally, as a target set, the Bull dimensions (in effective MoA) should increase uniformly with distance by a rate that is more than linear (i.e. slightly exponential), to allow for the increasing difficulty of judging and allowing for the wind. At the same time, the probability of scoring a possible should progressively decrease gracefully with increasing distance, without nose-diving. The ratios of Bull sizes (relative to the 300 yds Bull) that best meet these requirements were found to be as follows (current NRA Bull ratios also shown in red):

Distance	300 yds	400 yds	500 yds	600 yds	800 yds	900 yds	1000 yds
Ideal Bull Ratio	1.00	1.02	1.05	1.10	1.21	1.28	1.36
Current NRA	1.00	1.07	1.12	1.15	1.57	1.40	1.26

The current NRA Bull sizes, percentage possibles and average scores are shown in Figure 10. Note that the 900 yds data is shown as separate (larger) points and is not included in the trend lines as the target is the same physical size as 1000 yds and therefore proportionately

11% larger. It can be seen that the current NRA target set is not ideal as a consistent set, as there is a hump rather than a dip in the Bull sizes at 500 & 600 yds, and the percentage of possibles tends to nose-dive as distance increases.

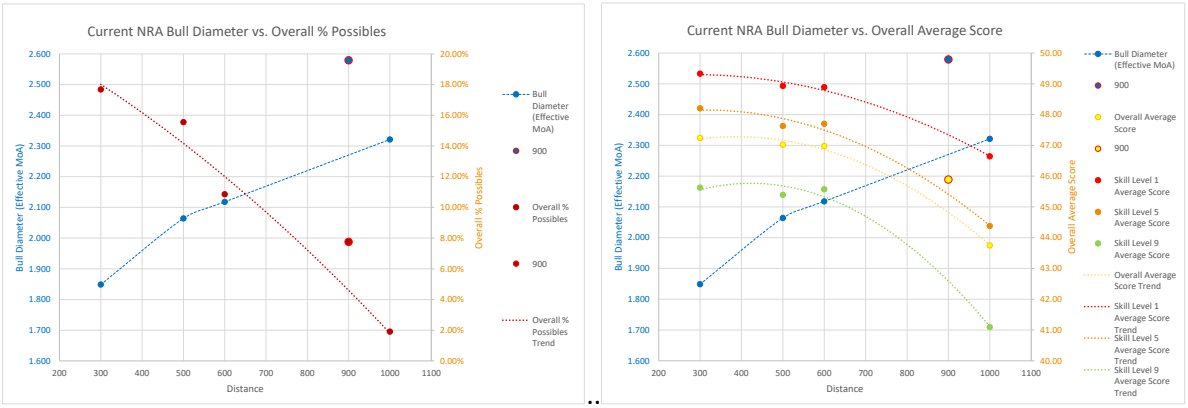


Figure 10 – Current NRA Target Set Dimensions, Percentage Possibles and Average Scores

7.6 Assessment of the Suitability of the ICFRA Target Set

The relative dimensions (pale blue), percentage possibles (orange) and average scores (right hand graph) that would be achieved by Imperial Meeting shooters using the ICFRA International Match target set are shown in Figure 11. The Current NRA plots (dark blue and dark red) are also shown on the left hand graph as a comparison.

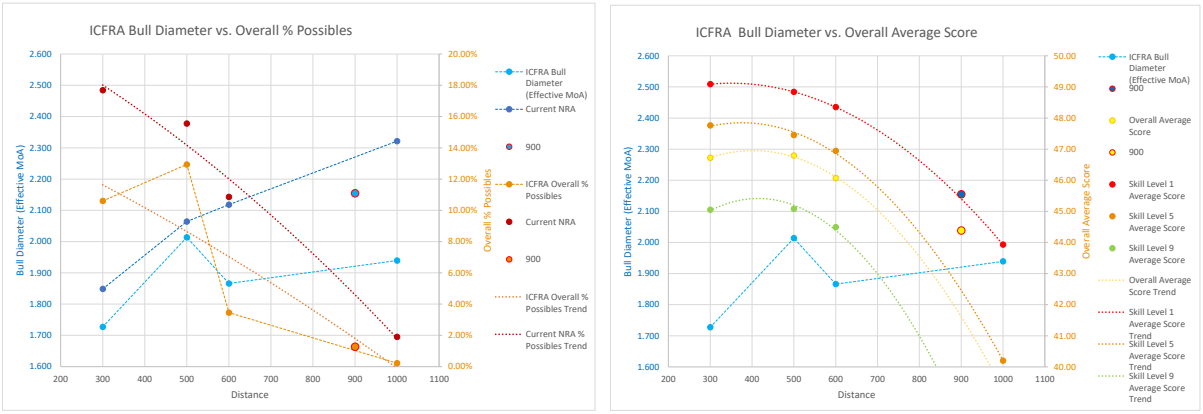


Figure 11 – ICFRA Target Set Dimensions, Percentage Possibles and Average Scores

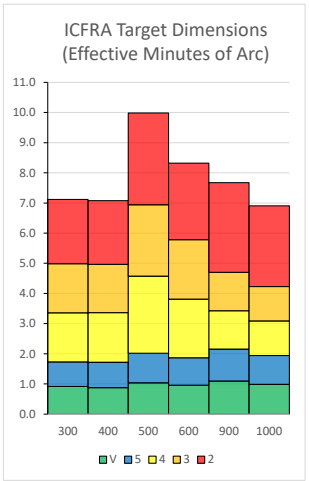


Figure 12 – ICFRA Target Dimensions Comparison by Distance

As a target set, the ICFRA International Match set of targets is far from consistent. The 500 yds Bull is proportionately larger than all other distances (except 900 yds) and the 1000 yds Bull is barely larger than the 600 yds Bull, as illustrated in Figure 11 and Figure 12. The Bull ratios at most distances are also not close to the ideal, as shown in the table below.

Distance	300 yds	400 yds	500 yds	600 yds	800 yds	900 yds	1000 yds
Ideal Bull Ratio	1.00	1.02	1.05	1.10	1.21	1.28	1.36
ICFRA	1.00	0.99	1.17	1.08	1.40	1.25	1.12

Figure 11 also shows that the effect on the percentage of possibles is even more markedly irregular, with 500 yds being significantly larger than any other distance and the overall percentage of possibles expected at 1000 yds being virtually zero (0.2%). The ICFRA long range target is particularly tough as it is based on the NRA of America High Power target, which uses decimal scoring and scoring rings that are roughly whole number multiples of the X ring rather than the UK rings which are whole number multiples of the Bull. Figure 12 shows that the 900 yds Inner is barely larger than the 300 yds Inner, and the 900 yds Magpie is smaller than the Magpie at all the short ranges. At 1000 yds the Inner, Magpie and Outer are all the smallest of any distance, when logic says they should be the largest. The effect of these very small Inner and Magpie on the ICFRA long range target is illustrated very clearly as a large dip in the scores on the 900 and 1000 yds graphs in Annex G. The dip at the ICFRA Bull diameter is due to the very narrow 32” Inner and 44” Magpie on the ICFRA Long Range target compared with the 44” Inner and 72” Magpie used to derive the other points on the graph. As a result, average scores at 1000 yds across all weather conditions are very low (Figure 11), being under 44 for skill level 1, and all skill levels below level 5 would be expected to have an average score of below 40. On UK ranges with commercial ammunition, the ICFRA Long Range target is unsuitable for all but elite shooters in coached matches on relatively benign days. For individual competition, the points dropped at 1000 yds would, for most people, completely wipe out any good shooting at other distances in most aggregates. For these reasons the ICFRA target set, particularly the long range target, was rejected as being unsuitable for adoption for general shooting in the UK.

7.7 Selection of the Optimum Target Set

The effects of different target dimensions on average scores and the percentage of possibles, as illustrated in the graphs in Annex G, were the prime guide to selecting suitable target dimensions. These graphs show that, as the target dimensions decrease, average scores fall quite slowly, with the drop in the scores of lower skill levels falling a little faster than the higher skill levels. This has the desired effect of spreading the scores (Objective 2), as well as reducing the overall percentage of possibles.

The fall in the percentage of possibles is a little faster, as shown by the green line on the graphs. For clarity, only the overall average percentage of possibles is shown in the graphs in Annex G, but the full data for all skill levels is provided in Annex F, and an example showing the effect on the different skill levels is shown below in Figure 13. The thick green line is the overall percentage possibles line shown in the graphs of Annex G. It is clear that the percentage of possibles falls much faster at the higher skill levels than at the lower ones (albeit the lower skill levels start at a lower level). It should be noted that even shooters at

skill level 10 do currently score possibles, albeit not as frequently as at higher skill levels. This can be a problem for young Tyros, as it can lead to them losing their Tyro status as a result of a single fortunate shoot that is well above their usual average.

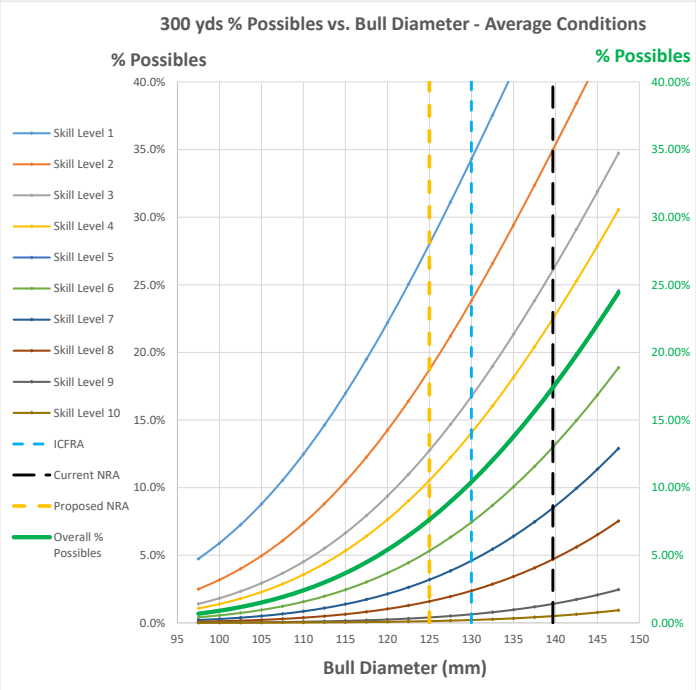


Figure 13 –Typical Graph of UK Percentage Possibles Variation with Bull Diameter

Despite the unsuitability of the ICFRA target set as a whole, the 600 yds ICFRA target appeared to the Working Group to give the right level of scores and percentage possibles. The target is familiar to a number of shooters. Most average scores drop by less than a point from current scores (0.91 overall, 0.54 at skill level 1, 0.76 at level 5, 1.08 at level 9 and 1.34 (from 42.72 to 41.38) at level 10), and the overall percentage of possibles is 3.5%, consistent with the target of 3-5%. These figures assume that shooters' group sizes stay the same as at present. It is expected that, shooting on tighter targets, most shooters will manage to improve their groups quite quickly, as has happened after previous reductions in Bull size, reducing the size of the drop in scores and increasing the percentage of possibles above the forecast 3.5%.

With the 600 yds dimensions as a starting point, the next step was to find target dimensions for the other distances that formed a consistent set with it. The dimensions selected are shown in green (Proposed NRA) in Annex K, alongside the current NRA target dimensions (in red) and the difference between current and proposed. As seen in the table below, the proposed Bull dimensions are close to, and slightly above, the ideal Bull ratios. Figure 14 also illustrates that the target dimensions set is consistent (with the inevitable exception of 900 yds and the Magpie and Outer at 500 yds) and therefore satisfies Objective 4.

Distance	300 yds	400 yds	500 yds	600 yds	800 yds	900 yds	1000 yds
Ideal Bull Ratio	1.00	1.02	1.05	1.10	1.21	1.28	1.36
Proposed NRA	1.00	1.03	1.07	1.12	1.74	1.55	1.39
Considered NRA					1.67	1.49	1.34

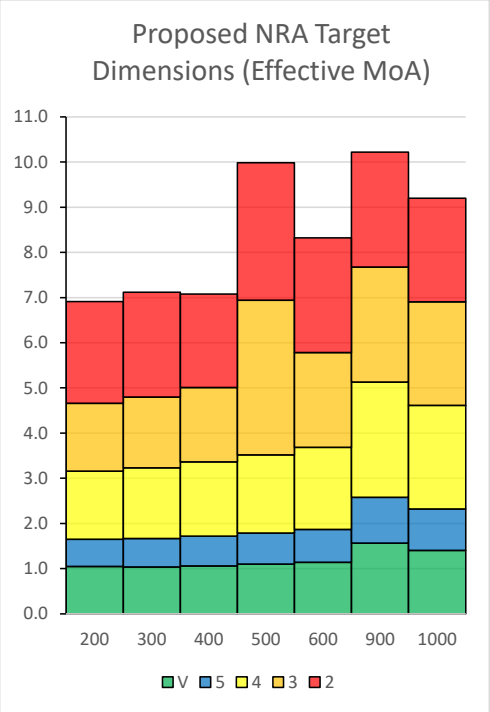


Figure 14 – Proposed Target Dimensions Comparison by Distance

Also included in Annex K is a summary of the effect on average scores and the percentage of possibles. For clarity, these are limited to the overall effect and skill levels 1, 5 and 9: the full effects for other skill levels are detailed in Annex E and Annex F in the green columns headed 'Prop'd'. These effects are also illustrated graphically in Figure 15.

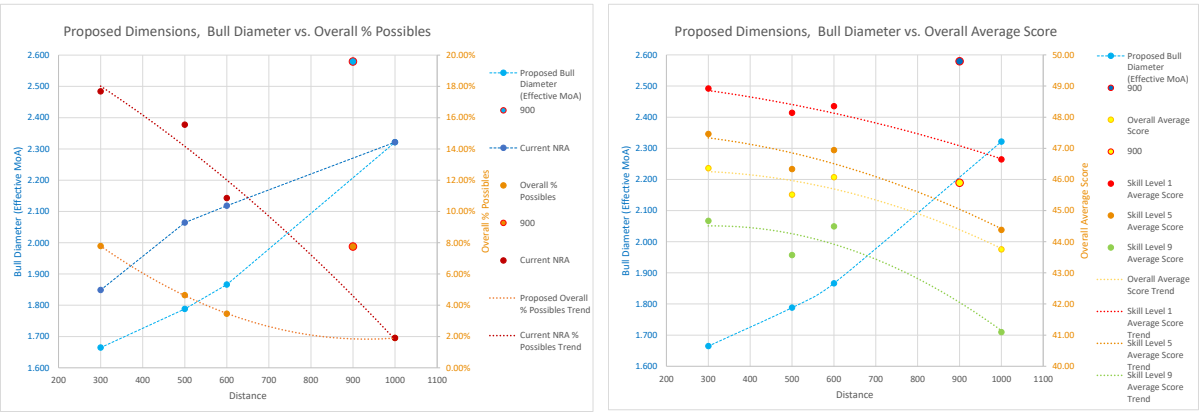


Figure 15 – Proposed Target Set Dimensions, Percentage Possibles and Average Scores

It should be noted that the proposed target dimensions leave the Long Range target unchanged from the current dimensions. The issue of keeping the Inner as extending to the edge of the aiming mark, rather than halving the Inner and including the Magpie inside the black, has already been discussed in sections 7.3 and 7.6. Considering that the Bull on the Long Range target has not changed since 1974, it was considered that a change was appropriate. Consequently a reduction in the aiming mark and Inner to the ICFRA size of 44", together with a small reduction in the size of the Bull (to 23" or 22") was considered.

There are considerable logistical advantages of reducing the size of the aiming mark to 44". This brings it into line with the ICFRA and F Class target and means that replaceable centres

with just the rings inside the black are all that is needed to change from one target type to another. With electronic targets, which the NRA intends to introduce on Stickledown within the foreseeable future, it is even easier, as the scoring rings are simply changed within the software. Having to change aiming marks negates this advantage and creates extra work for range staff.

Keeping the long range target unchanged within the proposed target dimensions set also means that, at 7.8%, the percentage of possibles at 900 yds will be as high as at 300 yds, and higher than the 3-5% target originally suggested (section 7.5 bullet 2). As shown in Figure 16 and the lower table in Annex K, a 23" Bull would bring the overall percentage of possibles at 900 yds down to 5.3% (more consistent with the target 3-5%), but would push the overall percentage of possibles at 1000 yds down from 1.9% to 1.2%, and 0.3% in difficult conditions. The effect on average scores of this change is quite modest: less than half a point for most and less the three quarters of a point even for skill level 9 at 1000 yds. (A 22" Bull would bring the overall percentage of possibles at 900 yds down to 3.5% and the overall percentage of possibles at 1000 yds down to 0.7%, which was felt to be too low and therefore rejected by the Working Group.)

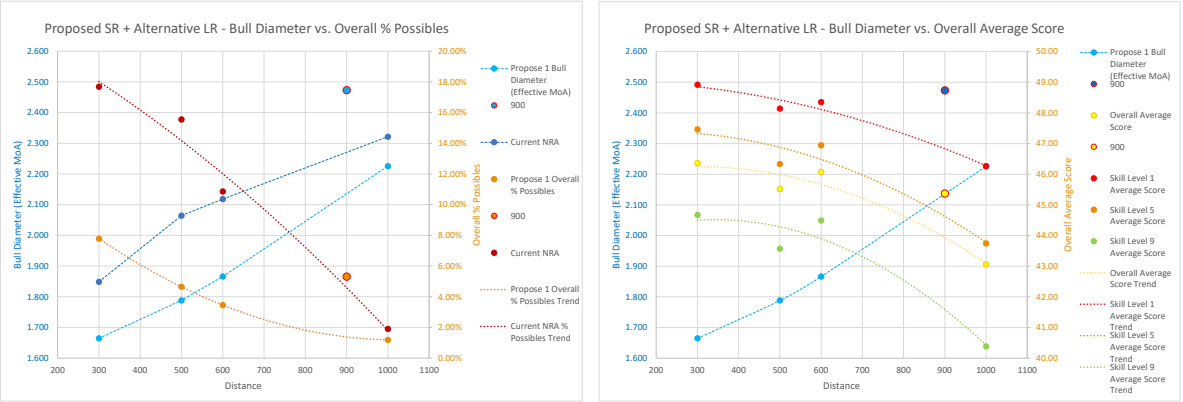


Figure 16 – Alternative LR Target Set Dimensions, Percentage Possibles & Average Scores

While a reduction to a 44" Inner and 23" bull was considered as a strong option, the majority of the Working Group considered that, on a difficult day, the current Long Range target was already hard enough and should not be reduced at this time. Furthermore, this would ensure there was no impact on Match Rifle shooters, who were split on whether or not they wanted to see any reduction in the size of the target (and were adamant that they would not want it to go as small as the ICFRA target).

The Working Group recommendation for the Long Range target is therefore that it remains unchanged for now, although a reduction to a 44" Inner/aiming mark and a 23" Bull remains an option, probably for introduction at a future time once the effects of the changes to the short range targets have been seen.

7.8 Scoring Rings Beyond the Bull

While the focus of the study was on the bull dimensions, the effects of different sizes of the other scoring rings was also addressed. The Current NRA target set has scoring rings that are all whole number multiples of the Bull diameter, with the exception of 500 yds (which uses the 600 yds target with a smaller Bull and V Bull) and the 200 yds Outer (which is also

the aiming mark). For simplicity, all the calculations of the effects on average scores assumed that the rings inside the aiming mark were whole number multiples of the Bull diameter. There were exceptions to this where the current NRA or ICFRA target dimensions do not follow this rule, and the effects of these exceptions shows up on the graphs in Annex G as humps or dips.

In particular, the humps in the 500 & 600 yds traces at the ICFRA Bull diameter and in the 500 yds traces at the NRA Bull diameter are due to the Inner for those targets being larger than twice the Bull diameter. An Inner that is exactly twice the diameter of the Bull has been used for all other points on the graph. The hump in the trace at the 600 yds Current NRA Bull diameter is due to the Magpie for that target being larger than the Magpie (aiming mark) on the ICFRA target, which is what has been used for all other points on the graph. The hump in the trace at the 900 & 1000 yds Current NRA bull diameter is due to the Inner being 48" (twice the Bull diameter). An Inner of 44" (ICFRA aiming mark size) has been used for all other points on the graph, except at the ICFRA Bull diameter.

The dip at the 900 & 1000 yds ICFRA Bull diameter is due to the very narrow Inner (32") and Magpie (44") and 72" Outer on the ICFRA Long Range target compared with the 44" Inner, 72" Magpie and 96" Outer used to derive the other points on the graph.

The effect of these humps and dips is more noticeable at lower skill levels, as higher skill level shooters have fewer shots near the outer edge of the NRA Inner or Magpie.

Unless the dimension differences are large, as is the case with the ICFRA Long Range target, the effect on scores is generally low and will have a greater impact on the lower skill level shooters. The Working Group could therefore see no reason to change from the current NRA policy of having scoring rings that are whole number multiples of the Bull diameter. The exception to this is at the aiming mark, and rings outside the black where, for the sake of uniformity across the target shooting world, the ICFRA dimensions have been proposed.

In line with this, the diameter proposed for the 600 yds inner (580mm) is twice the 600 yds Bull diameter (290mm), not the same as the slightly larger ICFRA 600 yds Inner (600mm).

Note also that the diameter proposed for the 500 yds inner (460mm) is twice the 500 yds Bull diameter (230mm), not the same as the 600 yds Inner (580mm) as has traditionally been the case. One implication of this is that the replaceable centre for the 500 & 600 yds targets would have to be large enough to include the 600 yds Inner, i.e. slightly larger than 580mm. If the replaceable centre is made slightly larger than 600 mm, it would be possible to change the 500 & 600 yds 6ft target between NRA and ICFRA and between 500 yds and 600 yds simply by changing the replaceable centre. The size of such a replaceable centre is only slightly larger than the replaceable centre for the 300 yds target (which includes the whole 300 yds aiming mark), so would be perfectly manageable. The different target faces would need to be marked such that they are readily identifiable from the firing point.

7.9 V Bull Dimensions

The effect of different V Bull dimensions has been assessed separately from the Bull and other scoring rings. The V Bull is used as a tie breaker. The size of the V Bull can therefore impact on the frequency and size of any tie shoots (Objective 5). The V Bull should be sized

such that the perfectly executed shot with perfect wind judgement will result in a V Bull, so it should not be so small that luck plays a major element is scoring a V.

In order for the perfect shot with perfect wind judgement to fall inside the V Bull, the size of it must accommodate the inherent group sizes of the rifle and ammunition, as well as the shooter group size of the best shooter's aiming accuracy, steadiness of hold, trigger release and wind judgement. This also needs to allow for the fact that, with ¼ minute clicks on sights, even the best centred group and most accurate wind judgement can be up to ⅛ minute off centre both vertically and horizontally. The rings beyond the V only need to cater for the increasing shooter group size associated with less skilled shooters, as the rifle and ammunition grouping and centring capability is fixed and has already been catered for in the V Bull dimension. It is logical, therefore, that the Bull diameter should be less than twice the diameter of the V Bull.

The Current NRA V Bull is 0.6 times the diameter of the Bull, whereas all other countries' targets use a V Bull that is only 0.5 times the diameter of the Bull. The other countries' smaller V tends to result in relatively low V counts. In the 12,925 shoots used from the Hex Systems data, shot on ICFRA targets, there were just 5 scores of 50.10. Two of those were at 800 yds (where the V Bull is over 20% larger than any other distance except 900 yds), two were at 500 yds (where the V Bull is significantly larger than all but 800 & 900 yds as shown in Figure 11) and one was at 400 yds.

Prior to 1998, the NRA V Bull was 0.67 (⅔) times the Bull dimension. In 1998 the V Bulls at all distances were reduced to 0.6 times the bull diameter. The Working Group considered that the V Bull should be between 0.5 and 0.67 times the diameter of the Bull (section 7.5 bullet 3), and there should be a realistic probability of being able to score a 50.10 by skill, rather than by luck. A V Bull larger than 0.67 times the diameter of the Bull would leave a very narrow Bull outside the V Bull.

Looking at the average V count data in Annex H, the percentage of 10 V possibles data in Annex I and the graphs in Annex J, it is clear that the V Counts of the different skill levels are at a point in the curve where the skill levels are converging as the V Bull diameter reduces. Rather than spreading out scores to make breaking ties easier, a smaller V Bull makes it more probable that there will be a tie and that more people will be in that tie (which goes counter to Objective 5). This is particularly true at long range, where V counts are generally very low at all skill levels.

The percentage of 10 V possibles is already small and, at ICFRA (0.5 times Bull) dimensions, is effectively zero at all distances. This suggests that the ICFRA V Bull is smaller than skill alone can achieve, and an increasing element of luck comes into scoring a V. Looking at the data, the Working Group concluded that, to avoid very low and bunched V counts with the proposed smaller Bull dimensions, the V Bull should be no smaller than 0.6 times the diameter of the Bull, which is the current NRA policy.

Adopting a V Bull that is larger than 0.6 times the Bull would create a problem with the Long Range target, where the recommendation is for no reduction in the size of the Bull, or only a

very small one if the Alternative Long Range target is adopted. To increase the size of the V Bull to above 0.6 times would mean increasing the size of the current V Bull.

Since the introduction of RUAG ammunition in 2009, most 900 yds competitions in the Imperial Meeting have been won with a 50.10, often after a tie shoot, and the Corporation 1000 yds competition has always been won with a score of 50.6 or better (50.6 once, 50.7 twice, 50.8 once, 50.9 four times and 50.10 once, after a tie shoot). Increasing the V Bull on the Long Range target was therefore considered undesirable, as it would only lead to more frequent and larger tie shoots. Not increasing the V Bull on the Long Range target if the V Bull on the short range targets is made larger than 0.6 times the Bull diameter would make the target set inconsistent.

It was therefore concluded to stick with the current NRA basis of having the V Bull 0.6 times the diameter of the Bull. This has determined the V Bull dimensions recommended in Annex K.

7.10 Comparison of Current and Proposed Target Dimensions

Annex K shows the current (red) and proposed (green) target dimensions. It also shows the predicted effects on average scores and the percentage of possibles overall, and for skill levels 1, 5 and 9.

A visual comparison between the current and proposed target dimensions is given in Annex L. These diagrams are all to scale, as the target is seen from the relevant firing point. The comparisons between the current and proposed target dimensions at 300, 500 and 600 yds are shown in Figure 17, Figure 18 and Figure 19 respectively. In the main, the dimension changes are small, although the changes at 500 yds may seem quite large. This is primarily because the proposed dimensions recommend adopting an Inner that is twice the diameter of the Bull (in keeping with the other distances), rather than adopting the 600 yds Inner, which is the current practice, but which is currently 2.48 times the size of the 500 yds Bull and allows some really very bad shots to go inadequately punished. Furthermore, the current 500 yds Bull is rather larger than the ideal bull ratio for a consistent target set (see the table near the bottom of section 7.5 and Figure 10). The size reduction of the proposed 500 yds Bull is therefore slightly greater than at other distances, to bring it into line as part of a consistent target set. When compared with the current 300 yds target (Figure 20), it is clear that the V Bull, Bull and Inner of proposed 500 yds target are proportionally almost identical to the current 300 yds target (and therefore larger than the proposed 300 yds target), and that the 500 yds Magpie/aiming mark is virtually identical in size to the 300 yds Outer.

The Alternative Long Range target is compared with the current NRA Long Range target in Figure 21, which shows the small reduction in the V Bull, Bull and Inner/aiming mark. The ICFRA Long Range target is compared with the current NRA Long Range target in Figure 22. This shows by just how much smaller the ICFRA is than the current NRA Long Range target.

8. Assessment of the Solution Options

Using the proposed dimensions recommended in Annex K as the basis of solution options 6-11 in Annex D, the pros and cons of each option were reviewed and listed. The degree to which each option satisfied each of the Objectives was then evaluated by individual Working Group members by scoring them as 0 (fails to satisfy the objective) to 10 (completely satisfies the objective). The individuals' scores were consolidated and averaged. These averaged scores, multiplied by the weighting of each objective, produce an overall score. The Option with the highest score is therefore the solution that is considered to best meet the objectives. The Working Group's consolidated scoring is summarised in Annex M, with the total weighted scores in the right hand column (in red).

The solution option that came out as having the highest score and therefore is considered the best at meeting the weighted Objectives was Option 11: At distances for which ICFRA targets are not adopted, reduce the size of all scoring rings. All ring dimensions to be determined (Inner and Magpie may be more or less than whole number multiples of Bull dimension and determined on the basis of what best meets the objectives, with rings not necessarily equally spaced).

The recommended way forward for NRA Target Rifle target dimensions is therefore this option, with the proposed target dimensions specified in Annex NAnnex K (which are taken from Annex K and include dimensions for 200 yds, based on those for 300 yds, and for 400 yds, interpolated between 300 & 500 yds dimensions in proportion to the ideal Bull ratio). Annex N also shows the effect of the proposed dimensions on average scores at different distances. It should be noted that the predicted scores assume no change to shooters' group sizes. Experience shows that, for most people, their group size will gradually tighten to meet the challenge of the reduced target dimensions. New averages are therefore likely to be higher than those predicted in Annex N.

While the Working group's recommendation is for no change to the Long Range target, if it is felt that the Long Range target should change at this time, then the dimensions labelled as 'Alternative Long Range' at the bottom of the table in Annex N should be used (also labelled as 'Considered' in Annex B and in the bottom table of Annex K). The more challenging ICFRA Long Range target can still be specified for particular long range matches if the committee organising the match deems it to be appropriate.

The effect of the changed dimensions on whether shooters decide to quit the sport (Objective 8) is impossible to predict. It is commonly believed (although figures are not available) that a significant number of smallbore shooters stopped shooting when the NSRA reduced target sizes in 1989, but also that the scores of those who persisted were back to their previous levels within 3 years, as shooters improved their groups. It is believed that, by explaining why changes are considered necessary and by showing what the expected effects on scores and the percentage of possibles will be, and showing that the effects are small and potentially recoverable (with effort or training), the hope is that few, if any, shooters will decide to stop shooting. Much will depend on how the changes are marketed. The intention is to ensure that plenty of Basic and Advance Target Rifle Skills courses are

available for those who wish to improve their skills and recover, or even improve upon, their old scores.

9. Conclusions

Other than a small change to the 600 yds bull in 1995, the short range Bull dimensions have not changed since 1988 and the Bull on the Long Range target has not changed since 1974 (Annex A). Since that time, 155 grain bullets have replaced 144 grain, superior RUAG and now GGG ammunition have replaced RG, rifles have improved, eagle eyes have been allowed and it is quite probable that shooter skills have improved as well. Scores have certainly improved (Figure 4) and are now heavily bunched at 48, 49 & 50 (Figure 1, Figure 2 and Figure 3). The percentage of possibles has steadily increased (Figure 5). The UK now has the largest targets of the Target Rifle shooting world (Annex B). Changes to the target dimensions are long overdue.

Twelve Objectives that any change to target dimensions should strive to satisfy have been identified (Annex C). Twelve possible solution options were evaluated for their ability to satisfy the Objectives (Annex D). Some of these required the specification of a new, optimum set of target dimensions.

Hex Systems provided two years' worth of data from shoots on electronic targets, which included the x and y coordinates of 12,925 individual 10 round shoots. Scoring rings of any dimension can be superimposed on the shot coordinates to determine the effects of how average scores, V counts and the percentage of possibles vary with changes to target dimensions.

Seven years' worth of scores from the 2010-2016 Imperial Meetings (74,483 individual 10 and 15 round shoots) were analysed to determine average scores and the percentage of possibles scored on the current NRA targets.

Both sets of data were analysed and shooters divided into 10 skill levels. All the shoots were also assessed to determine the weather conditions in which they were shot, and assigned as Easy, Average or Difficult.

The resulting data analysis shows how average scores (Annex E), percentage of possibles (Annex F), average V counts (Annex H) and percentage of 10 V possibles (Annex I) change for Imperial Meeting shooters as the dimensions of the Bull (Annex G) and V Bull (Annex J) vary.

In addition to the overall effects, the effects for each of the 10 skill levels in each of the 3 weather conditions at each commonly shot distance have been quantified.

The ICFRA International Match target set has been assessed and found to be unacceptably inconsistent across the different distances, and the ICFRA Long Range target was adjudged too difficult for normal use by shooters in the UK. It could still be specified for particular long range matches if the committee organising the match deems it to be appropriate.

A consistent set of short range target dimensions has been proposed, based around the dimensions of the ICFRA 600 yds target. These dimensions and their effects on average

scores and the percentage of possibles have been summarised in Annex K. A visual comparison between the current and proposed targets is shown in Annex L.

The pros and cons of the 12 solution options have been reviewed (Annex D) and scored according to the degree to which each Option satisfies each of the Objectives. These scores, multiplied by the weighting of each Objective, provided an overall score which identified the Option that best satisfies the Objectives (Annex M): At distances for which ICFRA targets are not adopted, reduce the size of all scoring rings. All ring dimensions to be determined (Inner and Magpie may be more or less than whole number multiples of Bull dimension and determined on the basis of what best meets the objectives, with rings not necessarily equally spaced).

The proposed target dimensions are specified in Annex NAnnex K.

The proposed target dimensions leave the Long Range target unchanged from the current dimensions for now, although a reduction to a 44" Inner/aiming mark and a 23" Bull remains an option.

The current NRA practice of having scoring rings that are whole number multiples of the Bull diameter should be retained for rings inside the black. ICFRA dimensions are proposed for the short range aiming marks and the 500 & 600 yds Outer, for uniformity across the target shooting world.

In keeping with the other short ranges, the 500 yds Inner should be twice the diameter of the Bull, and will therefore be different from the 600 yds Inner. This will require the replaceable centre to be slightly larger than 600 mm square, but it would then be possible to change the 500/600 yds 6ft target between NRA and ICFRA targets and between 500 yds and 600 yds simply by changing the replaceable centre.

The V Bull should be 0.6 times the diameter of the Bull at all distances.

10. Recommendations

It is recommended that:

1. The proposed target dimensions specified in Annex N be adopted from 1 January 2019Annex K.
2. If the Shooting Committee and the NRA Council believe that the Long Range target should change at this time, the Alternative Long Range dimensions specified in Annex N should be adopted.
3. The 500 & 600 yds replaceable centre should be large enough to include the ICFRA Inner (slightly larger than 600 mm square) to allow the target to be changed between NRA and ICFRA targets and between 500 yds and 600 yds simply by changing the replaceable centre. The different target faces should be marked such that they are readily identifiable from the firing point.

11. Acknowledgements

Grateful thanks are given to:
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Dr John Salt of Cranfield University at the Royal Military College of Science, Shrivenham for guidance on the theory of shot distributions.
The members of the Target Dimensions Working Group for their contributions.

Annex A. NRA Target Dimension Changes History

Year	Summary of Changes
Pre 1968	Short range targets semi-circular Tin Hat aiming mark extending to the edge of the Inner. 500 yds target the same as 600 yds. Long range targets circular aiming mark the diameter of the Bull (30”).
1968	V Bull introduced as a tie breaker at 0.67 x Bull diameter. Short range aiming mark changed to circular to the edge of the Inner. Long range target aiming mark increased to 40" (part way across the Inner) (except for Match Rifle – retained at 30" for 1968 & 69 only, then 40" from 1970).
1972	Separate 500 yds Bull & V introduced (other rings as 600 yds). All short range rings reduced except 600 yds Bull & V, with Magpie brought inside the aiming mark. Long range target unchanged except 1/2" Miss border introduced around the edge of the target.
1973	Long range target Miss border increased to 1" all round.
1974	**Bull sizes (only) reduced at all distances and V removed.**
1978	400 yds target dimensions defined. 500 & 600 yds Outer redefined as a rectangle 70”x60”.
1988	**Short range bull sizes reduced & V reintroduced. Long range target not changed (still no V).**
1992	Long range V reintroduced.
1995	**Hit introduced: Inner, Magpie and Outer scoring ring sizes reduced at all distances (except 500 & 600 yds where the Magpie increased with the aiming mark) and aiming mark sizes increased. Long range target aiming mark now extends to the edge of the Inner. Bull and V Bull sizes unchanged except 600 yds Bull reduced.**
1998	V Bull reduced to 0.6 x Bull size at all distances.

NRA Target Dimensions History

DIAMETER - INCHES	200 yds							300 yds							400 yds						
UK NRA	V	5	4	3	2	1	Aim	V	5	4	3	2	1	Aim	V	5	4	3	2	1	Aim
Pre-1968		5	12	24	48		12		7.5	18	30	48		18							
1968-71	4	5	12	24	48		12	5	7.5	18	30	48		18							
1972	3	4.5	9	14	24		14	4.5	6.75	13.5	21	36		21							
1973	3	4.5	9	14	24		14	4.5	6.75	13.5	21	36		21							
1974-77		3.75	9	14	24		14		6	13.5	21	36		21							
1978-87		3.75	9	14	24		14		6	13.5	21	36		21		8.5	18	28	48		28
1988-91	2.5	3.5	9	14	24		14	3.75	5.5	13.5	21	36		21	5.25	8	18	28	48		28
1992-94	2.5	3.5	9	14	24		14	3.75	5.5	13.5	21	36		21	5.25	8	18	28	48		28
1995-97	2.5	3.5	7	10.5	16	46wx46h	16	3.75	5.5	11	16.5	22	46wx46h	22	5.5	8	16	24	32	46wx46h	32
1998-2018	2.1	3.5	7	10.5	16	46wx46h	16	3.3	5.5	11	16.5	22	46wx46h	22	4.8	8	16	24	32	46wx46h	32

DIAMETER - INCHES	500 yds							600 yds							Long Range						
UK NRA	V	5	4	3	2	1	Aim	V	5	4	3	2	1	Aim	V	5	4	3	2	1	Aim
Pre-1968		15	36	48	72		36		15	36	48	72		36		30	54	84	120wx72h		30
1968-71	10	15	36	48	72		36	10	15	36	48	72		36	20	30	54	84	120wx72h		40
1972	8	12	27	36	72		36	10	15	27	36	72		36	20	30	54	84	119wx71h		40
1973	8	12	27	36	72		36	10	15	27	36	72		36	20	30	54	84	118wx70h		40
1974-77		11	27	36	72		36		14	27	36	72		36		24	54	84	118wx70h		40
1978-87		11	27	36	70wx60h		36		14	27	36	70wx60h		36		24	54	84	118wx70h		40
1988-91	7	10.5	27	36	70wx60h		36	9	13.5	27	36	70wx60h		36		24	54	84	118wx70h		40
1992-94	7	10.5	27	36	70wx60h		36	9	13.5	27	36	70wx60h		36	16	24	54	84	118wx70h		40
1995-97	7	10.5	26	39	52	70wx60h	39	9	13	26	39	52	70wx60h	39	16	24	48	72	96	118wx70h	48
1998-2018	6.3	10.5	26	39	52	70wx60h	39	7.8	13	26	39	52	70wx60h	39	14.4	24	48	72	96	118wx70h	48

Annex B. Worldwide Target Rifle Target Dimensions Comparison

Dimensions in Inches

DIAMETER - INCHES	200 yds							300 yds							400 yds						
	V	5	4	3	2	1	Aim	V(X)	5(10)	4(9)	3(8)	2(7)	1(6)	Aim	V	5	4	3	2	1	Aim
Current UK	2.1	3.5	7	10.5	16	46wx46h	16	3.3	5.5	11	16.5	22	46wx46h	22	4.8	8	16	24	32	46wx46h	32
Canada	1.75	3.5	7	10.5	16	46wx46h	16	2.75	5.5	11	16.5	22	46wx46h	22	4	8	15.25	22.25	30	70wx70h	30
South Africa(equiv*)								2.56	5.12	13.45	22.05	46x46		22.05							
USA								2.85	5.85	8.85	11.85	17.85	23.85	17.85							
ICFRA (Aus, NZ, WI)								2.56	5.12	10.24	15.35	22.05	46wx46h	22.05	3.35	6.89	13.78	20.47	29.33	70wx70h	29.33
Proposed UK	1.89	3.15	6.30	9.45	14.17	46wx46h	14.17	2.95	4.92	9.84	14.76	22.05	46wx46h	22.05	4.13	6.89	13.78	20.67	29.33	70wx70h	29.33

* South African target dimensions are based on ICFRA but only defined for metre distances. The figures quoted are the equivalent ICFRA yards dimensions.

DIAMETER - INCHES	500 yds							600 yds							Long Range						
	V(X)	5(10)	4(9)	3(8)	2(7)	1(6)	Aim	V(X)	5(10)	4(9)	3(8)	2(7)	1(6)	Aim	V(X)	5(10)	4(9)	3(8)	2(7)	1(6)	Aim
Current UK	6.3	10.5	26	39	52	70wx60h	39	7.8	13	26	39	52	70wx60h	39	14.4	24	48	72	96	118wx70h	48
Canada	5.25	10.5	26	39	52	70wx70h	39	6.5	13	26	39	52	70wx70h	39	12	24	48	72	96	94wx70h	48
South Africa(equiv*)	5.71	11.42	23.62	36.02	70x70		36.02	5.71	11.42	23.62	36.02	70x70		36.02	10	20	44	60	94x70		44
USA	5	10	15	20	25	30	30	6	12	18	24	36	48	36	10	20	30	44	60	72wx72h	44
ICFRA (Aus, NZ, WI)	5.12	10.24	23.62	36.02	51.97	70wx70h	36.02	5.71	11.42	23.62	36.02	51.97	70wx70h	36.02	10	20	32	44	72	94wx70h	44
Proposed UK	5.43	9.06	18.11	36.02	51.97	70wx70h	36.02	6.85	11.42	22.83	36.02	51.97	70wx70h	36.02	14.4	24	48	72	96	118wx70h	48
Considered UK															13.8	23	44	72	96	118wx70h	44

Dimensions in Effective Minutes of Arc

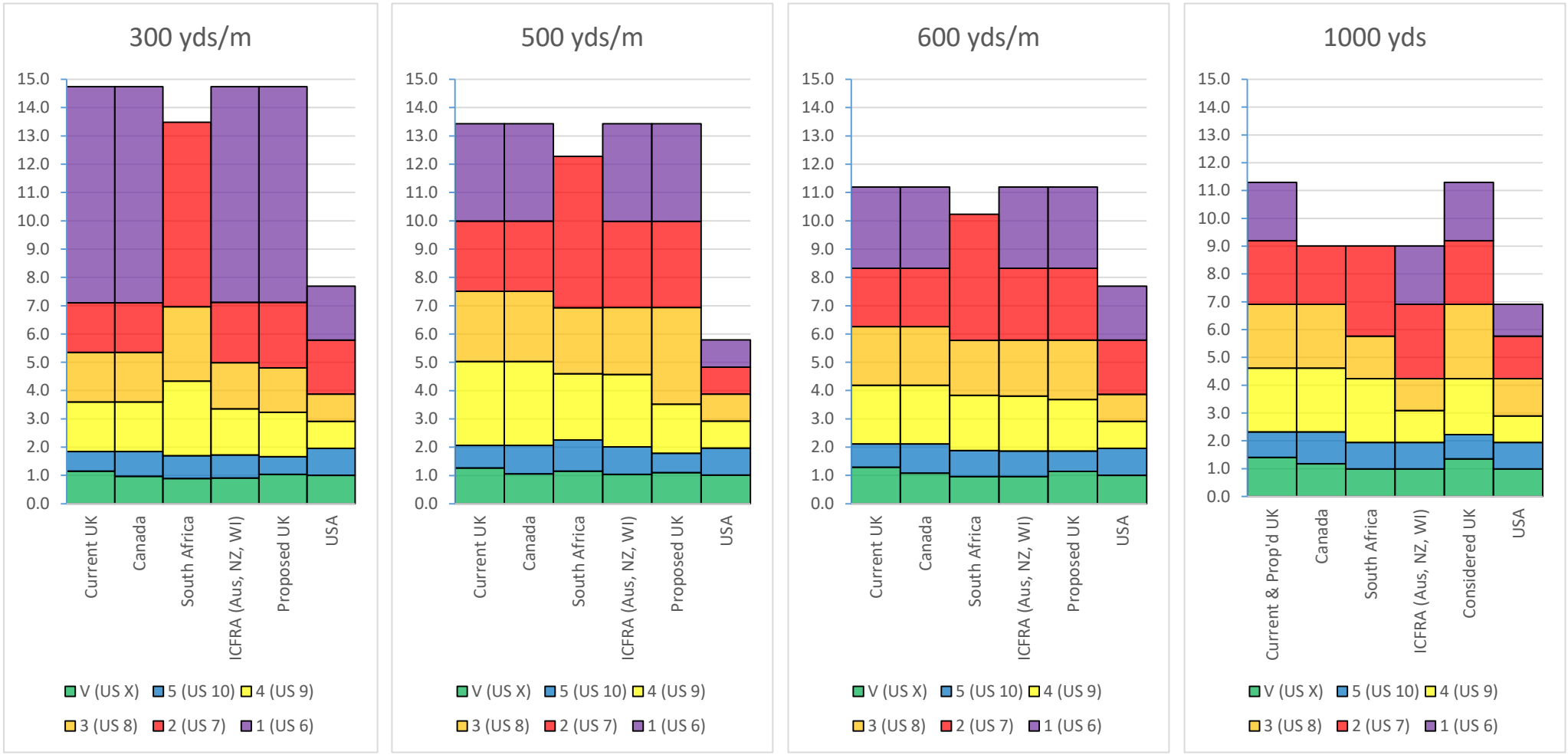
DIAMETER – EFFECTIVE MINUTES OF ARC	200 yds							300 yds						
	V	5	4	3	2	1	Aim	V(X)	5(10)	4(9)	3(8)	2(7)	1(6)	Aim
Current UK	1.150	1.818	3.489	5.160	7.786	22.11x22.11	7.639	1.148	1.849	3.599	5.350	7.101	14.74x14.74	7.003
Canada	0.983	1.818	3.489	5.160	7.786	22.11x22.11	7.639	0.973	1.849	3.599	5.350	7.101	14.74x14.74	7.003
South Africa								0.892	1.694	4.330	6.965	13.478x13.478		6.875
USA								1.005	1.960	2.915	3.870	5.780	7.690	5.682
ICFRA (Aus, NZ, WI)								0.913	1.727	3.356	4.985	7.116	14.74x14.74	7.018
Proposed UK	1.049	1.651	3.155	4.659	6.914	22.11x22.11	6.767	1.038	1.665	3.231	4.797	7.116	14.74x14.74	7.018
Current UK Outward Gauge	0.760	1.429	3.100	4.771	7.397	21.72x21.72	7.639	0.889	1.589	3.340	5.090	6.841	14.48x14.48	7.003
ISSF 300m Target								0.663	1.236	2.381	3.527	4.673	5.819	
NSRA .22" 25 yds								0.723	1.155	2.306	3.459	4.610	5.763	8.093

DIAMETER – EFFECTIVE MINUTES OF ARC	400 yds							500 yds						
	V	5	4	3	2	1	Aim	V(X)	5(10)	4(9)	3(8)	2(7)	1(6)	Aim
Current UK	1.219	1.983	3.893	5.803	7.713	11.055x11.055	7.639	1.262	2.064	5.024	7.507	9.990	13.428x11.518	7.448
Canada	1.028	1.983	3.714	5.385	7.235	16.785x16.785	7.162	1.061	2.064	5.024	7.507	9.990	13.428x11.518	7.448
South Africa								1.154	2.254	4.592	6.929	12.28x10.53		6.875
USA								1.014	1.969	2.924	3.879	4.833	5.788	5.730
ICFRA (Aus, NZ, WI)	0.872	1.718	3.363	4.961	7.076	16.785x16.785	7.002	1.036	2.014	4.570	6.939	9.984	13.428x11.518	6.880
Proposed UK	1.060	1.718	3.363	5.008	7.076	16.785x16.785	7.002	1.096	1.788	3.518	6.939	9.984	13.428x11.518	6.880
Current UK Outward Gauge	1.025	1.789	3.698	5.608	7.518	10.86x10.86	7.639	1.106	1.908	4.869	7.351	9.834	13.272x11.362	7.448

DIAMETER – EFFECTIVE MINUTES OF ARC	600 yds							800 yds						
	V(X)	5(10)	4(9)	3(8)	2(7)	1(6)	Aim	V(X)	5(10)	4(9)	3(8)	2(7)	1(6)	Aim
Current UK	1.290	2.118	4.187	6.256	8.325	11.19x9.598	6.207	1.756	2.902	5.766	8.631	11.496	14.122x8.392	5.730
Canada	1.084	2.118	4.187	6.256	8.325	11.19x9.598	6.207	1.469	2.902	5.766	8.631	11.496	11.257x8.392	5.730
South Africa	0.962	1.878	3.826	5.774	10.23x8.78		5.730	1.230	2.424	5.290	7.199	11.26x8.39		5.253
USA	1.004	1.959	2.914	3.869	5.779	7.688	5.730	1.230	2.424	3.618	5.289	7.199	8.631x8.631	5.252
ICFRA (Aus, NZ, WI)	0.958	1.866	3.809	5.782	8.320	11.19x9.598	5.733	1.230	2.424	3.856	5.289	8.631	11.257x8.392	5.252
Proposed UK	1.139	1.866	3.683	5.782	8.320	11.19x9.598	5.733	1.756	2.902	5.766	8.631	11.496	14.122x8.392	5.730
Considered UK (23" LR Bull)								1.684	2.782	5.289	8.631	11.496	14.122x8.392	5.252
Current UK Outward Gauge	1.161	1.988	4.057	6.126	8.195	11.06x9.468	6.207	1.658	2.804	5.669	8.534	11.398	14.024x8.295	5.730

DIAMETER – EFFECTIVE MINUTES OF ARC	900 yds							1000 yds						
	V(X)	5(10)	4(9)	3(8)	2(7)	1(6)	Aim	V(X)	5(10)	4(9)	3(8)	2(7)	1(6)	Aim
Current UK	1.561	2.579	5.126	7.672	10.219	12.553x7.46	5.093	1.405	2.321	4.613	6.905	9.197	11.298x6.714	4.584
Canada	1.306	2.579	5.126	7.672	10.219	10.01x7.46	5.093	1.175	2.321	4.613	6.905	9.197	9.01x6.71	4.584
South Africa	1.094	2.155	4.702	6.399	10.01x7.46		4.669	0.984	1.939	4.232	5.759	9.01x6.71		4.202
USA	1.094	2.155	3.216	4.701	6.399	7.67x7.67	4.669	0.984	1.939	2.894	4.231	5.759	6.9x6.9	3.820
ICFRA (Aus, NZ, WI)	1.094	2.155	3.428	4.701	7.672	10.01x7.46	4.669	0.984	1.939	3.085	4.231	6.905	9.01x6.71	4.202
Proposed UK	1.561	2.579	5.126	7.672	10.219	12.553x7.46	5.093	1.405	2.321	4.613	6.905	9.197	11.298x6.714	4.584
Considered UK (23" LR Bull)	1.497	2.473	4.701	7.672	10.219	12.553x7.46	4.669	1.347	2.226	4.231	6.905	9.197	11.298x6.714	4.202
Current UK Outward Gauge	1.474	2.493	5.039	7.586	10.132	12.466x7.373	5.093	1.327	2.243	4.535	6.827	9.119	11.22x6.636	4.584

Target Dimensions Graphical Comparison



Note: The relative 800 & 900 yds target sizes are identical to 1000 yds (since they use the same target), but the Minutes of Arc subtended by each ring are larger in proportion to the difference in distance (i.e. 800 yds is 25% larger than 1000 yds and 900 yds is 11% larger).

Annex C. Objectives of the Target Rifle Target Dimensions Review

	Objective	Issues	Comments	Weight
1.	Move towards standardising target dimensions throughout the Target Rifle shooting world	With a very few single distance and/or single ring exceptions, the UK target dimensions are the largest of any in the Target Rifle shooting world. Australia, New Zealand, the West Indies and the Canadian province of British Columbia have adopted ICFRA targets. South Africa uses a modified variant of ICFRA targets. The USA uses decimal targets with the same dimensions as ICFRA targets at long range (and targets with similar bulls but much smaller, decimal scoring rings at short range). ICFRA targets are already used for some major international matches (Palma, Australia Match, Kolapore).	All countries other than the UK use hand-loaded ammunition which can group tighter than even the best commercial ammunition. For a number of reasons, the UK is unlikely to adopt hand-loaded ammunition for NRA competitions in the foreseeable future. ICFRA targets, particularly the Long Range target, may be appropriate for the elite, top level shooters, but are considered by some to be too difficult for the average 'club' shooter. At 1000 yds, the most difficult distance for wind judgement, the inner, magpie and outer all subtend smaller angles (3.085, 4.231 and 6.905 minutes respectively) than at any other distance, including the 'easiest' distance (300 yds - 3.356, 4.985 and 7.116 minutes respectively - these dimensions include allowance for the width of the bullet). Even at 900 yds, the magpie (4.701 minutes) is smaller than the 300 yds magpie. The ICFRA dimensions in minutes do not increase progressively or uniformly as distance increases - the ICFRA 500 yds target, in particular, is significantly larger than the other distances. A reduction in the size of the long range bull from 24" to 20" diameter would be too large a reduction (16.7%) to be done in one step. The Long Range Target is used by Match Rifle shooters as well as Target Rifle shooters, so they need to agree the changes if they are not to use a different target (logistically undesirable). Part of the attraction of shooting abroad is shooting at targets of different dimensions.	3
2.	Spread out scores	The size of most bulls has not reduced for over 29 years (Long Range target: over 43 years; 600 yds: 22 years). In that time 155 grain have replaced 144 grain bullets, RG ammunition has been replaced with superior RUAG and now GGG, rifles have improved and standards of marksmanship have also improved thanks to better understanding through tools such as Scatt. Most scores are closely bunched around 48-50, so there is very little to differentiate	Target dimensions can be deemed to be appropriate when they provide a fair and representative method of ranking the competitors. Target dimensions should not be so tight that a 'possible' cannot be gained by skill alone. Even average club shooters have become accustomed to scoring possibles now and then, but may become disenchanted with the sport and give up if they feel they will no longer be able to score a possible on reduced size targets (as happened in smallbore when the bull size was reduced in 1989, although scores were back to previous levels within 3 years as shooters improved their techniques to match the smaller bull). The current bull size is at the limit of the Cadet Target Rifle grouping	8

	Objective	Issues	Comments	Weight
		between good shooters and average shooters in a 10 or even 15 round shoot. Possibles were once quite a rare achievement, to be celebrated. They are now so commonplace that they have become the 'norm' and many consider scoring less than a possible to be a failure. The level of scores should be such that, in an aggregate competition, a slip at one stage can be recovered from. Scores have steadily risen over the years, despite reductions in bull sizes in 1974 and 1988. Target dimensions used to be revised to try to keep the number of possibles in an imperial Meeting competition at about 1.75% of the entry. In some competitions over 20% of the entry are now scoring possibles.	capability - any smaller and cadet scores with the CTR will drop further, dispiriting cadet shooters. Careful 'marketing' of revised dimensions will be required so that people understand why target dimensions are changing, what the short term effects on scores are likely to be, and what they can do to improve their scores (e.g. provision of skills courses).	
3.	Penalise poor shots to encourage better shooting	Target dimensions should not be so loose that poor wind judgement or a poor shot still results in a bull. It is currently possible to fire a bad shot and still get a bull. Tighter targets promote tighter groups (better standards of shooting), until they reach the limit of shooters' natural grouping ability. The rings outside the bull are far too widely spaced and do not adequately penalise bad shots or poor wind judgement: the size of the other scoring rings (with the possible exception of the V bull) should always be reduced when reducing the size of the bull.	The innermost scoring ring (whether that is considered to be the bull or the V bull) has to accommodate the grouping capabilities of the gun and ammunition as well as the additional error from the shooter's hold, aim, trigger release and wind judgement (shooter error), while the subsequent scoring rings only have to accommodate the additional shooter errors arising from increasingly poor shooter ability (be that hold, aim, technique or wind judgement). On that basis, the gap between the innermost scoring ring and the subsequent scoring rings should be LESS than the radius of the innermost scoring ring (whether that is considered to be the bull or the V bull) to account for the exclusion of rifle/ammunition group element from the subsequent rings. US targets and the ICFRA long range target do this, but ONLY if you consider the bull as the innermost scoring ring (i.e. ignoring the X/V). Otherwise, if the V bull is considered the innermost scoring ring, only the UK NRA bull does this (but none of the subsequent rings do). In all other cases, the gap between subsequent rings is as big as, and often bigger than, the radius of the bull or V bull. This means that the shooter error (excluding the gun/ammunition group) that results in a wide inner can be significantly more than twice the maximum shooter	8

	Objective	Issues	Comments	Weight
			error allowable to get a bull. For example, with a rifle/ammunition group size of 0.25 minutes, the maximum shooter error to be sure of getting a V bull on an ICFRA 300 yds target is 0.663 minutes (0.913-0.25), but to get a bull is 1.477 minutes (2.2 times the error for a V) and to get an inner is 3.106 minutes (4.7 times the error to get a V and 2.1 times the error for a bull). The gaps on most other targets are bigger, with 500 yds being the worst. Why should a minor error of wind judgement that just squeaks out of the bull be penalised as heavily as a rank bad shot of over twice the shooter error?	
4.	Ensure that bull dimensions (in effective minutes of arc - i.e. including allowance for the width of the bullet and inwards gauging) increase uniformly with distance by a rate that is more than linear, to allow for the increasing difficulty of judging and allowing for the wind, but not by too much, so that the probability of scoring a possible still decreases with increasing distance.	This is limited to short range and 1000 yds, due to the use of fixed targets for all the long ranges, which makes 900 yds and especially 800 yds proportionately larger than 1000 yds. The current NRA target set achieves this, but the ICFRA set is far from uniform, with the 500yds bull being proportionately larger than any other distance and the 1000 yds bull being only slightly larger than 300 yds.	Effective bull size proportions relative to 300 yds: **Current NRA Ideal ICFRA Proposal** 300 1.00 1.00 1.00 1.00 400 1.07 1.02 0.99 1.03 500 1.12 1.05 1.17 1.07 600 1.15 1.10 1.08 1.12 1000 1.26 1.36 1.12 1.39 Average percentage of Imperial Meeting entry scoring possibles (ex 50): **Current NRA ICFRA Proposal** 300 17.7% 10.6% 7.8% 500 15.6% 12.9% 4.6% 600 10.9% 3.5% 3.5% 900 7.8% 1.3% 7.8% 1000 1.9% 0.2% 1.9%	8
5.	Limit tie shoots to a manageable number and scale (typically 2 to 5 shooters, and very rarely more than 6).	The V bull is currently at or inside the limit of virtually everyone's grouping ability. A smaller V bull could result in more, not fewer tie shoots, each involving more people, and could result in the winners being determined more by luck than skill. Other countries with smaller V bulls do not seem to have any more or any bigger tie shoots than the UK does.	Tie shoots delay the deciding of winners. Tie shoots may be shot in conditions very different from the original competition. Tie shoots take organisation and cost money (range staff, markers and ammunition). Tie shoots are one of the most exciting elements of competitive shooting.	5
6.	Standardise aiming mark sizes across the distances	The angular size of the aiming mark is different at all distances apart from the rarely used 200 & 400 yds, requiring changes of foresight sizes at every distance to get a consistent sight picture. The current UK NRA	ICFRA would prefer all countries to adopt their aiming mark sizes, despite the fact that these are different for all distances beyond 500 yds and vary in size from 7.018 to 4.202 minutes, also a 67% variation. US target aiming marks range from 5.730 to 4.202 minutes, a variation of 36%.	2

	Objective	Issues	Comments	Weight
		sizes range from 7.639 minutes (200 & 400 yds) down to 4.584 minutes (1000 yds), a variation of 67%. At 200, 300 & 400 yds the aiming mark is at the edge of the Outer. At 500 & 600 yds it is at the edge of the Magpie. At long range it is at the edge of the Inner.	Many ranges don't have room to store separate targets for 500 & 600 yards, so a common 6ft target should be used with different centres. The aiming mark is too large to replace for every distance change between 500 & 600, so the replaceable centre currently only affects the bull and V bull. Using the same aiming mark at 500 & 600 yds enforces a 20% variation in aiming mark sizes between these distances. Use of a standard long range target for distances from 800 - 1000 yds also imposes a 25% variation in aiming mark size between 800 & 1000 yds. Other than at 300 yds, current aiming marks are too large to allow use of optimum sized foresights (>2x aiming mark size) without seeing stop butt beyond the edge of the target within the foresight ring (5/600 yds aiming mark is 39" on 72" target face, long range aiming mark is 48" on a 72"x120" target face). US shooters considered a long range aiming mark of 40" (3.82 minutes at 1000 yds) as too small and increased it to 44" (4.202 minutes at 1000 yds).	
7.	Minimise the number of different target faces required.	Many ranges don't have room to store separate targets for each distance, so targets are standardised to frames measuring 4ft x 4ft (for 200-400 yds), 6ft x 6ft (for 500 & 600 yds, and often also used for shorter range targets) and 10ft x 6ft (for 800-1200 yds). Re-facing the whole aiming mark is practical at distances up to 300 yds, but at longer distances the aiming mark is too large to replace for every distance change, so it is only practical to replace the bull and V bull (centre) when re-facing for wear or to change distances. 500 & 600 yards therefore use a common target with just different bull and V bull centres. Currently the same Long Range Target is used at all distances from 800-1200yds.	Using the same aiming mark at 500 & 600 yds enforces a 20% variation in aiming mark sizes between these distances. Use of a standard long range target for distances from 800 - 1000 yds also imposes a 25% variation in aiming mark size between 800 & 1000 yds. Changing only the Bull and V Bull when re-facing the centre to change between 500 & 600 yds results in a disproportionately large inner at 500 yds.	6
8.	Avoid significant numbers of shooters quitting the sport due to it being too difficult to obtain a good score.	When the smallbore target dimensions were reduced in 1989, many shooters quit the sport on the basis that they could no longer score possibles or get the scores they were used to. Nevertheless, for those who stuck with it,	Even average club shooters have become accustomed to scoring possibles now and then, but may become disenchanted with the sport and give up if they feel they will no longer be able to score a possible on reduced size targets. Careful 'marketing' of revised dimensions will be required so that	8

	Objective	Issues	Comments	Weight
		scores were back to their previous levels within 3 years.	people understand why target dimensions are changing, what the short term effects on scores are likely to be, and what they can do to improve their scores (e.g. provision of skills courses).	
9.	Avoid deep pockets providing disproportionate advantage.	A very good, expensive rifle should provide little advantage for winning individual competitions over a less expensive good rifle.	Target dimensions should allow top scores to be made with a reasonably priced good rifle.	7
10.	Retain (reinforce) the spirit of TR.	Target dimensions should ideally enhance and definitely should not detract from the traditional ethos of Target rifle. Target Rifle has always provided the opportunity for a less skilled shooter who has a good day to beat a more experienced shooter who has an off day.	Target dimensions should allow top scores to be made occasionally by less experienced shooters while, at the same time, being difficult enough to ensure top shooters do not always to get top scores. Target dimensions in minutes of arc should get progressively larger as the distance increases, to account for the increasing difficulty of the wind, but should still make it harder to score a possible at a longer distance (i.e. the proportional increase in bull size with distance should not be so great that the percentage of scores that are possibles is the same at all distances).	8
11.	Long Range target dimensions must be acceptable to Match Rifle shooters.	The Long Range target will also be used by Match Rifle shooters as it is impractical to have another different set of targets for them alone (the Stickledown target shed already has to provide ICFRA and F Class targets in addition to 50 standard NRA Long Range targets).	It is just possible for Match Rifle shooters to score possibles at 1200 yds on the current target on a day with benign winds, but in tricky winds a substantially smaller target such as the ICFRA Long Range target will be unacceptably harsh on scores.	8
12.	Eliminate the conundrum of whether to cut ordinary bull sighters in a competition in order to have the chance of winning the competition, or not cut in order to preserve the score for aggregates.	If it is highly likely that a 50.10 or 75.15 will be needed to win a competition and the probability of scoring a V bull is significantly higher than the chance of getting an inner, there is a temptation not to convert an ordinary bull as to do so will probably rule out the chance of winning the competition. Not converting a bull risks dropping a point on the last to count, which affects the aggregate.	If competitions are nearly always won with 50.10 or 75.15, anyone wishing to win the competition has to cut any ordinary bull sighters.	2

Annex D. Potential Solution Options

The pros and cons of each potential solution option, and how well each of the options satisfies each of the Objectives, have been assessed and are listed below. The numbers in brackets refer to the Objective number(s) affected by the comment.

The suitability and efficacy of options 6-11 is very dependent on the target dimensions selected, so the analysis concentrated on quantifying the effects of different target dimension sets to determine dimensions that best satisfied as many of the objectives as possible (as described in subsequent sections). The Pros and Cons for options 6-11 listed below are based on the recommended dimensions set.

	Option	Pros	Cons
1.	Do Nothing.	Status quo - most club shooters & MR will be happy (8, 11). Target proportions are fairly uniform (4). Maintains the current number of different targets - regional ranges' storage adequate (as current) (7). Current rifles adequate (9).	Does nothing to move towards ICFRA (1), spread out scores (2), penalise poor shots (3), standardise aiming marks (6), or remove the convertible sighters conundrum (12). Ties shoots likely to increase over time (5). Top shooters likely to be frustrated by overly large targets, high scores preventing recovery from a poor shoot, and lack of practice on 'tight' target to improve group sizes and prepare for international shoots (2, 8, 10). Doesn't minimise the number of different targets - still need to have ICFRA & F Class as well as current NRA target sets at non-ICFRA distances - regional ranges' storage may be inadequate (but no worse than current) (7). Doing nothing is what we have been doing for a number of years and we have seen a steady decline in participation, although there is no evidence that target dimensions have a great deal to do with that.
2.	Adopt ICFRA target dimensions for specific matches (e.g. National, Mackinnon, Inter-Counties, Ages), but keep current dimensions for other competitions.	Status quo for most shooters & MR - most will be happy (8, 11). Maintains the number of different targets similar to current - regional ranges' storage adequate (7). Current rifles adequate for most shooters (9). Keeps international and national shooting separate. [Is may be a 'Con' rather than a 'Pro'] Deals with the argument from people that the targets are difficult enough below the 'elite' level. This is actually the current situation, i.e. the "do nothing" option. The only variable is which specific events should employ reduced targets -	ICFRA targets are too tight at long range and are inconsistent in size at short range, notably being disproportionately large at 500 yds where it is insufficiently small to achieve the desired objectives (2), (3) & (4). Does little to move towards ICFRA (1), spread out scores (2), penalise poor shots (3), standardise aiming marks (6), or remove the convertible sighters conundrum (12) except in major matches. Tie shoots likely to increase over time (5). Top shooters likely to be frustrated by overly large targets, high scores preventing recovery from a poor shoot, and lack of practice on 'tight' targets to improve group sizes and prepare for major matches and international shoots (2, 8, 10). Doesn't minimise the number of different targets - still need to have ICFRA & F Class as well as current NRA target sets at non-ICFRA distances - regional ranges'

	Option	Pros	Cons
		currently it's only the Palma, Australia Match and the Kolapore.	storage may be inadequate (but no worse than current) (7). Makes elite shooting ever more remote from the majority of UK based club level shots. Doesn't deal with any of the issues at the Imperial or in some Open Meetings. Doesn't really address the issue, which is all about individual rather than team match outcomes.
3.	Adopt ICFRA target dimensions for specific matches (e.g. National, Mackinnon, Inter-Counties, Ages) and the Imperial Meeting individual TR competitions, but keep current dimensions for other competitions/club shooting and MR. Note: Major meetings (Easter, Army, English XX, Scottish, British Commonwealth and Bisley club championships) are likely to fall into line with Imperial Meeting and adopt ICFRA targets too, and club shooters who want to enter these competitions are likely to ask for ICFRA targets to practice on.	Status quo for club shooters & MR - most will be happy (8, 11) except for those who want to practice for competitions on ICFRA targets. Moves towards ICFRA for major competitions (1). Spreads out scores (a little at short range, a lot at long range), penalises poor shots and probably removes convertible sighters conundrum in major competitions (2, 3, 12). Tie shoots may reduce (5). Current rifles adequate for most club shooters (9). Likely to lead to a progressive transition over 2-5 years towards ICFRA targets being the norm, as more and more competitions adopt ICFRA targets and more shooters want to practice on them. Given that Clubs have always been able to elect whatever targets they wish to use for their Open Meetings, this is essentially saying that we will now make the default target ICFRA and people can ask for the previous target. Simple to implement since we have everything in place already and targets are already available.	At long range, ICFRA targets are too tight for commercial ammunition and the conditions on UK ranges and particularly for club shooters, reducing scores dramatically (on average by around 3 points in a 10 round shoot), whilst at short range they have inconsistent sizes, particularly at 500 yds where the rings are disproportionately large (4). ICFRA targets do not adequately support objectives (2) & (3) and, if adopted at long range, would certainly make many club shooters consider quitting the sport because of the difficulty of achieving a reasonable score (8). Unlikely to spread scores of top shooters out very much at short range, but will spread them out a lot at long range - likely to make poor long range shoots very difficult to recover from as short range will not offer much recovery opportunity (2). Does nothing to standardise aiming marks (makes more different sizes to contend with) (6). Club shooters who enter the Imperial or other major competitions that use ICFRA targets are likely to want to practice on them, therefore requiring ICFRA targets on their local range. This doubles the number of different targets needed - regional ranges' storage likely to be inadequate (7). Top shooters likely to be frustrated by overly large targets in use outside the Imperial Meeting and lack of practice on 'tight' targets to improve group sizes and prepare for major matches and international shoots (2, 8, 10). The current bull size is at the limit of the Cadet Target Rifle grouping capability - any smaller and cadet scores with the CTR will drop further, dispiriting cadet shooters (8). It might frighten the Cadets for a little while, but isn't a major issue, given that everyone in their classification is in the same position. They can always shoot the Cadet Imperial for a year or two while they improve. Competitive shooters may need new/more expensive rifles to be competitive at long range on the very small ICFRA targets (9). The Imperial becomes a large scale TR "World Championships", only for the elite

	Option	Pros	Cons
			and tourists. Makes "The Imperial" an elite and unusual event that has little resonance with ordinary shooters (8).
4.	Adopt ICFRA target dimensions at short ranges and a compromise dimension (e.g. 22" or 23" bull, 40" or 44" inner) at long range.	Moves fully to ICFRA at short range and moves towards ICFRA at long range (1). Many MR shooters will welcome or accept a small reduction in the long range target dimensions, especially as it does not go all the way to the very small ICFRA target (11). Spreads out scores (a little at short range, a fair bit at long range), penalises poor shots and probably removes convertible sighters conundrum (2, 3, 12). Tie shoots may reduce (5). Maintains the number of different targets similar to or better than current - regional ranges' storage adequate (7). Top shooters able to practice on 'tight' targets to improve group sizes and prepare for major matches and international shoots (2, 10). This reflects the relative difficulty of Stickledown as a range.	At short range, ICFRA targets are not scientifically deduced and have inconsistent sizes, particularly at 500 yds where the rings are disproportionately large (4). ICFRA short range targets do not adequately support objectives (2) & (3). Some club & MR shooters will be unhappy, believing they can no longer achieve a possible, and may leave the sport (8, 11). Unlikely to spread scores of top shooters out very much at short range, but will spread them out more at long range - likely to make poor long range shoots very difficult to recover from as short range will not offer much recovery opportunity (2). Does nothing to standardise aiming marks (6). The current bull size is at the limit of the Cadet Target Rifle grouping capability - any smaller and cadet scores with the CTR will drop further, dispiriting cadet shooters (8). Some club shooters may feel they need new/more expensive rifles to be competitive at all distances on the reduced size targets, and some competitive shooters may need new/more expensive rifles to be competitive at long range on the reduced size long range targets (9). It will still require a separate F-Class target for short ranges. F-Class centre for their V can be pasted into the long range target. Other than the perception that the skill difference between nearly-a-bull and nearly-a-magpie but both scoring 4 is perceived, perhaps correctly, to be too large, it doesn’t address issues in a coherent fashion (3).
5.	Adopt ICFRA target dimensions at all distances.	Moves fully to ICFRA (1). Spreads out scores (a little at short range, a lot at long range), penalises poor shots and probably removes convertible sighters conundrum (2, 3, 12). Tie shoots may reduce (5). Minimises the number of different targets - regional ranges' storage should be adequate (better than current) (7). Top shooters able to practice on 'tight' targets to improve group sizes and prepare for major	At long range, ICFRA targets are too tight for commercial ammunition and the conditions on UK ranges, and particularly for club shooters, reducing scores dramatically (on average by around 3 points in a 10 round shoot), whilst at short range they are not scientifically deduced and have inconsistent sizes, particularly at 500 yds where the rings are disproportionately large. ICFRA targets do not adequately support objectives (2) & (3) and, if adopted at long range, would certainly make many club shooters consider quitting the sport because of the difficulty of achieving a reasonable score (8). Many club & MR shooters will be unhappy, believing they can no longer achieve a possible, and may leave the sport (8, 11). Unlikely to spread scores of top shooters out very much at short range, but will

	Option	Pros	Cons
		matches and international shoots (2, 10). Standards achieved - but based on elite shooters under wildly different start conditions than those found at Bisley. Simple and means that overseas visitors will likely have experience of the same targets. Makes it easier for us to prepare our own teams for going overseas. One set of targets required for all disciplines, except F-Class at short range. Simplicity - the targets are already available.	spread them out a lot at long range - likely to make poor long range shoots very difficult to recover from as short range will not offer much recovery opportunity (2). Does nothing to standardise aiming marks (6). The current bull size is at the limit of the Cadet Target Rifle grouping capability - any smaller and cadet scores with the CTR will drop further, dispiriting cadet shooters (8). More club shooters may feel they need new/more expensive rifles to be competitive at all distances on the reduced size targets, and even more competitive shooters may need new/more expensive rifles to be competitive at long range on the very small ICFRA targets (9). The target set is illogical and untried against normal Bisley conditions. Long Range at Bisley and other venues around the country might be perceived as a bit of a challenge in some wind conditions. There is no coherent theoretical basis behind ICFRA target sizes. The V-Bulls are mostly smaller than the ammunition grouping capability. Other than in benign conditions, the long-range inner/magpie boundary is truly vicious.
6.	At distances for which ICFRA targets are not adopted, reduce the size of the V Bull only, keeping other scoring rings unchanged. V Bull dimension to be determined (between 0.5 and 0.6 times Bull dimension).	Smaller Vs will reduce the number of 50.10s and 75.15s, which will affect the number and size of tie shoots (may reduce or increase) (5). Maintains the number of different non-ICFRA targets the same as the associated option above (7). Unlikely to impact club shooters any more than the associated option above (8). The V Bull should be set at the size of the grouping capacity of the weapon system - ammunition/rifle. Thus anything above that baseline must be attributed to shooter error. Relatively straightforward to do - requires change of repair centres only.	Does not fully move towards standardisation with ICFRA/rest of the world target sizes (1). Will do nothing to scores, other than reducing everyone's V count by a few, and certainly won't reduce the number of possibles or spread out scores or penalise poor shots any more than at present (2, 3). The V is only really there to resolve ties/counting out, so this is simply window dressing. Tie shoots will be affected and may increase (or reduce) in number and/or size (5). A V-Bull that is smaller than the rifle/ammunition grouping capability is logically incoherent and means results will be based on luck more than skill. If reduced below about 1 minute, hitting the V is statistically uncertain, given group sizes achieved with commercial ammunition – it is simply based on pure chance that an outlier is not experienced (8. 9, 10). Potential confusion and an inconsistent set of target dimensions as distance increases, if the V varies as a percentage of area from one set of targets (ICRFRA) to another (NRA) (4). Doesn't minimise the number of different targets - still need to have ICFRA & F Class as well as current NRA target sets at non-ICFRA distances - regional ranges'

	Option	Pros	Cons
			storage may be inadequate (but no worse than current) (7).
7.	At distances for which ICFRA targets are not adopted, reduce the size of the Bull only, keeping the V Bull and other scoring rings unchanged. Bull dimension to be determined.	Tackles directly the main technical issue of bunching of scores - spreads out scores, depending on size of reduction (most scores at short range, and many at long range, depend only on the bull line) (2). Penalises slightly (but not very) poor shots (3). Maintains the number of different non-ICFRA targets the same as the associated option above (7). Relatively straightforward to do - requires change of repair centres only.	Does not fully move towards standardisation with ICFRA/rest of the world target sizes (1). There is not a lot of (and probably not enough) scope for change, as the non-V part of the bull is currently only 0.4x the diameter of the bull and would become even narrower if the bull size is reduced and the V Bull isn't (2). The adverse consequences of tackling bunching of scores apply (discontented lower skill shooters, who are inevitably affected more by any spreading of scores) (2). This would also make the inner proportionately larger and will be too generous - no penalty difference between a poor and very poor shot as very poor shots will not be penalised any more than at present (due to no change to inner, magpie and outer sizes) (3). The number and size of tie shoots is unlikely to change (not changing the V size will not affect the number of 50.10s and 75.15s) (5). Some club & MR shooters may be unhappy, believing they can no longer achieve a possible, and may leave the sport (8, 11). Doesn't minimise the number of different targets - still need to have ICFRA & F Class as well as current NRA target sets at non-ICFRA distances - regional ranges' storage may be inadequate (but no worse than current) (7).
8.	At distances for which ICFRA targets are not adopted, reduce the size of the Bull and V Bull only, keeping other scoring rings unchanged. Bull and V Bull dimensions to be determined (V Bull between 0.5 and 0.6 times Bull dimension).	Basically the same pros and cons as option 7 but smaller Vs will reduce the number of 50.10s and 75.15s. Tie shoots will be affected and may reduce (or increase) in number and/or size (5). Tackles directly the main technical issue of bunching of scores - spreads out scores, depending on size of reduction (most scores at short range, and many at long range, depend only on the bull line) (2). Penalises slightly poor shots, but does not penalise very poor shots (due to no change to inner, magpie and outer sizes) (3). Maintains the number of different non-ICFRA targets the same as the associated option above	Basically the same pros and cons as option 7. Does not fully move towards standardisation with ICFRA/rest of the world target sizes (1). Tie shoots will be affected and may increase (or reduce) in number and/or size (5). Some club & MR shooters may be unhappy, believing they can no longer achieve a possible, and may leave the sport (8, 11). Very poor shots will not be penalised any more than at present (no change to inner, magpie and outer sizes) (3). The adverse consequences of tackling bunching of scores apply (discontented lower skill shooters, who are inevitably affected more by any spreading of scores) (8). A V-bull that is smaller than the rifle/ammunition grouping capability is logically incoherent and means results will be based on luck more than skill (4). Doesn't minimise the number of different targets - still need to have ICFRA & F Class as well as current NRA target sets at non-ICFRA distances - regional ranges'

	Option	Pros	Cons
		(7). More effective at spreading scores out than option 6. Relatively straightforward to do - requires change of repair centres only.	storage may be inadequate (but no worse than current) (7).
9.	At distances for which ICFRA targets are not adopted, reduce the size of all scoring rings. All ring dimensions to be determined (Bull, Inner and Magpie to be sequential whole number multiples of V Bull dimension).	This is similar to US targets and the ICFRA Long Range target, where the inner, magpie and outer are all much narrower that we are accustomed to, although even the US and ICFRA long range targets have rings that are slightly larger than whole number multiples of the V Bull. Smaller Vs will reduce the number of 50.10s and 75.15s. Spreads out scores, depending on size of reduction (most scores at short range, and many at long range, depend only on the bull line), and penalises poor shots (but very poor shots are penalised very severely) (2, 3). Tie shoots may reduce (5). Closer rings mean aiming marks that are more standardised could be adopted (6). Maintains the number of different non-ICFRA targets the same as the associated option above (if 500 yds magpie and beyond are the same as 600 yds) (7). Allows for a degree more flexibility if we don't think ICFRA is tight enough or too tight for any given set of targets (4). Potentially enables a (near) coherent solution (4).	Does not fully move towards standardisation with ICFRA/rest of the world target sizes (1). The rings are so narrow that you quickly run out of scoring rings - this really only works with decimal targets. Scores become very spread out with less skilled shooters most severely affected (2). Poor and very poor shots are penalised severely (similar to ICFRA long range target and US targets) (3). Not in the spirit of TR as we know it (10). Many club & MR shooters may be unhappy, believing they can no longer achieve a possible or even a reasonable score, and may leave the sport (8, 11). The sizes of rings are not adjusted to the difficulty of judging the wind at varing distances. The rings at 300 should be tight, while at mid and long ranges they should be drawn in proportion to wind sensitivity based on average conditions (4). Tight rings in difficult conditions produce impossibly low scores almost generated at random. Doesn't minimise the number of different targets - still need to have ICFRA & F Class as well as current NRA target sets at non-ICFRA distances - regional ranges' storage may be inadequate (but no worse than current) (7). Complex to implement - very small Outer and very large Hit (rest of target). Case not made for integral multiples, other than that it looks tidy. V-bull as a basis may be wrong - V bull should, I think, be set at or very close to the inherent capability of rifle / ammo so that only a perfect shot will guarantee one. Why restrict ourselves to a prescribed formula?
10.	At distances for which ICFRA targets are not adopted, reduce the size of all scoring rings. All ring dimensions to	Smaller Vs will reduce the number of 50.10s and 75.15s. Spreads out scores, depending on size of reduction (most scores at short range, and many at long range, depend only on the bull line), and	Does not fully move towards standardisation with ICFRA/rest of the world target sizes (1). Some club & MR shooters may be unhappy, believing they can no longer achieve a possible, and may leave the sport (8, 11). Very poor shots may not be penalised enough (depends on change to bull size

	Option	Pros	Cons
	be determined (Inner and Magpie to be sequential whole number multiples of Bull dimension).	penalises poor shots (2, 3). Tie shoots may reduce (5). Maintains the number of different non-ICFRA targets the same as the associated option above (if 500 yds magpie and beyond are the same as 600 yds) (7). Allows for a degree more flexibility if we don't think ICFRA is tight enough or too tight for any given set of targets (4). Potentially enables a (near) coherent solution (4). Mostly retains the spirit of TR as we know it (10).	which affects change to inner, magpie and outer sizes) (3). Does not move to adoption of more standardised aiming marks (6). The sizes of rings are not adjusted to the difficulty of judging the wind at varying distances. The rings at 300 should be tight, while at mid and long ranges they should be drawn in proportion to wind sensitivity based on average conditions. Tight rings in difficult conditions produces low scores. Doesn't minimise the number of different targets - still need to have ICFRA & F Class as well as current NRA target sets at non-ICFRA distances - regional ranges' storage may be inadequate (but no worse than current) (7). Does not follow the logic that the bull needs to contain elements of two variables while subsequent rings only need to extend significance of one of the two Why restrict ourselves to prescribed formula?
11.	At distances for which ICFRA targets are not adopted, reduce the size of all scoring rings. All ring dimensions to be determined (Inner and Magpie may be more or less than whole number multiples of Bull dimension and determined on the basis of what best meets the objectives, with rings not necessarily equally spaced). This is fundamentally the basis of the proposed solution target dimension set, where the ICFRA	Smaller Vs will reduce the number of 50.10s and 75.15s. Spreads out scores, depending on size of reduction (most scores at short range, and many at long range, depend only on the bull line), and penalises poor shots. Very poor shots are penalised appropriately (2, 3). Tie shoots may reduce (5). Maintains the number of different non-ICFRA targets the same as the associated option above (if 500 yds magpie and beyond are the same as 600 yds) (7). Allows for a degree more flexibility if we don't think ICFRA is tight enough or too tight for any given set of targets (4). Potentially enables a (near) coherent solution (4). Follows the logic that the bull needs to contain elements of two variables (shooter skill and rifle/ammunition grouping ability) while subsequent rings only need to extend significance of one of the two (shooter skill) (2 & 3). The sizes of rings can be adjusted to the difficulty of judging the wind at varying distances. The rings	Does not fully move towards standardisation with ICFRA/rest of the world target sizes (1) (but may encourage ICFRA to adopt our more rational set of revised short range dimensions). Some club & MR shooters may be unhappy, believing they can no longer achieve a possible, and may leave the sport (8, 11). Doesn't minimise the number of different targets - still need to have ICFRA & F Class as well as current NRA target sets at non-ICFRA distances - regional ranges' storage may be inadequate (but no worse than current) (7).

	Option	Pros	Cons
	aiming marks have been adopted (which are larger than whole number multiples of the Bull size) and rings beyond the aiming mark coincide with current ICFRA rings (also larger than whole number multiples of the Bull size), but inside the aiming mark the rings are whole number multiples of the Bull size. The V Bull is 0.6 times the Bull dimeter (not the ICFRA 0.5 times)	at 300 should be tight, while at mid and long ranges they should be drawn in proportion to wind sensitivity based on average conditions (3). Retains the spirit of TR as we know it (10). Methodology based on quantified effects of change to achieve desired results. Reduces average scores by a modest amount (0.4-1.3 points at short range and 0.2-0.3 points at long range) and spreads scores by a reasonable but not excessive amount (extra 0.4-0.9 points between skill levels 1 & 10 at short range, and extra 0.1 point at long range where they are already well spread) that should allow lower skilled shooters to be convinced not to give up shooting. Reduces possibles by between 39-84% at short range and by 25-56% at long range.	
12.	Move to outward gauging on current NRA targets.	Effectively reduces the 300x target by a significant amount, and all others by a bit, but the reduction diminishing as distance increases. Spreads out scores, though the effect reduces as distance increases, and penalises poor shots only to a limited extent at shorter distances (2, 3). Tie shoots may reduce (5). Maintains the targets the same as current (7). Costs almost nothing and takes no physical action to implement other than retraining markers.	Does nothing to move towards ICFRA (1), standardise aiming marks (6), or remove the convertible sighters conundrum at longer distances (12). Top shooters may be frustrated by overly large targets at longer distances (600 yds and beyond), high scores preventing recovery from a poor shoot, and lack of practice on 'tight' target to improve group sizes and prepare for international shoots (2, 8, 10). May not produce the desired outcomes - major effect at 300 yds but progressively less effect at longer distances (2). Does not significantly penalise poor shots outside the bull except at 300 yds (3). Incompatible with all other full-bore scoring - markers would need to be retrained and would have to switch to inwards gauging whenever ICFRA or F class targets are being used – a recipe for confusion (10). Doesn't minimise the number of different targets - still need to have ICFRA & F Class as well as current NRA target sets at non-ICFRA distances - regional ranges' storage may be inadequate (but no worse than current) (7).

Annex E. UK Average Scores at Different Target Dimensions

300 yds Average Score – All Conditions

Bull Ø												Prop'd		ICFRA				NRA			
Inches	3.84	3.94	4.04	4.13	4.23	4.33	4.43	4.53	4.63	4.72	4.82	4.92	5.02	5.12	5.22	5.31	5.41	5.50	5.61	5.71	5.81
mm	97.50	100.00	102.50	105.00	107.50	110.00	112.50	115.00	117.50	120.00	122.50	125.00	127.50	130.00	132.50	135.00	137.50	139.70	142.50	145.00	147.50
MoA	1.320	1.351	1.383	1.414	1.445	1.477	1.508	1.539	1.571	1.602	1.633	1.665	1.696	1.727	1.759	1.790	1.821	1.849	1.884	1.915	1.947
Skill Level																					
1	47.32	47.50	47.69	47.88	48.02	48.18	48.31	48.42	48.53	48.69	48.84	48.92	48.99	49.09	49.17	49.22	49.26	49.33	49.39	49.42	49.50
2	46.47	46.74	46.92	47.15	47.29	47.48	47.65	47.81	47.97	48.10	48.23	48.30	48.47	48.61	48.70	48.82	48.88	48.96	49.01	49.06	49.11
3	46.03	46.32	46.55	46.75	46.91	47.10	47.31	47.54	47.68	47.86	47.97	48.09	48.27	48.38	48.47	48.58	48.65	48.72	48.83	48.92	48.97
4	45.61	45.86	46.10	46.35	46.53	46.68	46.87	47.07	47.28	47.44	47.58	47.73	47.88	48.03	48.14	48.26	48.34	48.40	48.48	48.56	48.63
5	45.31	45.56	45.81	46.05	46.25	46.42	46.60	46.79	47.00	47.15	47.32	47.46	47.60	47.76	47.88	48.01	48.12	48.20	48.28	48.35	48.44
6	44.73	44.99	45.24	45.44	45.65	45.90	46.07	46.24	46.44	46.62	46.81	46.94	47.07	47.24	47.39	47.53	47.66	47.77	47.90	47.99	48.10
7	44.06	44.31	44.51	44.77	44.97	45.21	45.38	45.56	45.79	45.99	46.18	46.34	46.50	46.70	46.87	47.02	47.12	47.22	47.38	47.51	47.61
8	43.06	43.38	43.64	43.87	44.13	44.37	44.60	44.82	45.07	45.25	45.44	45.67	45.82	46.03	46.19	46.35	46.46	46.57	46.73	46.87	46.98
9	41.80	42.12	42.42	42.70	43.00	43.27	43.53	43.76	44.01	44.21	44.44	44.67	44.85	45.05	45.23	45.38	45.49	45.63	45.79	45.96	46.12
10	37.83	38.13	38.46	38.81	39.14	39.45	39.71	39.98	40.26	40.54	40.79	41.04	41.29	41.52	41.75	41.97	42.15	42.33	42.54	42.77	42.99

300 yds Average Score – Easy Conditions

Bull Ø												Prop'd		ICFRA				NRA			
Inches	3.84	3.94	4.04	4.13	4.23	4.33	4.43	4.53	4.63	4.72	4.82	4.92	5.02	5.12	5.22	5.31	5.41	5.50	5.61	5.71	5.81
mm	97.50	100.00	102.50	105.00	107.50	110.00	112.50	115.00	117.50	120.00	122.50	125.00	127.50	130.00	132.50	135.00	137.50	139.70	142.50	145.00	147.50
MoA	1.320	1.351	1.383	1.414	1.445	1.477	1.508	1.539	1.571	1.602	1.633	1.665	1.696	1.727	1.759	1.790	1.821	1.849	1.884	1.915	1.947
Skill Level																					
1	47.50	47.72	47.88	48.03	48.16	48.27	48.38	48.53	48.63	48.92	49.05	49.13	49.15	49.21	49.34	49.42	49.47	49.48	49.61	49.65	49.65
2	46.66	46.89	47.02	47.26	47.38	47.58	47.80	48.04	48.19	48.39	48.53	48.60	48.67	48.80	48.93	49.01	49.05	49.10	49.25	49.26	49.30
3	46.01	46.30	46.44	46.68	46.83	47.04	47.31	47.63	47.78	47.95	48.13	48.21	48.36	48.52	48.62	48.70	48.74	48.82	48.95	48.98	49.04
4	45.75	46.11	46.33	46.51	46.69	46.81	47.00	47.33	47.51	47.72	47.91	48.03	48.22	48.31	48.38	48.46	48.52	48.57	48.66	48.74	48.83
5	45.59	45.88	46.15	46.42	46.57	46.68	46.83	47.12	47.42	47.60	47.72	47.84	47.96	48.02	48.09	48.19	48.23	48.30	48.36	48.42	48.57
6	44.83	45.05	45.30	45.48	45.71	45.90	46.16	46.30	46.56	46.76	46.92	47.00	47.18	47.31	47.47	47.59	47.71	47.81	47.94	48.02	48.15
7	44.66	44.87	45.11	45.32	45.54	45.72	45.94	46.07	46.37	46.58	46.75	46.84	47.01	47.17	47.31	47.44	47.53	47.61	47.75	47.85	47.98
8	43.96	44.16	44.39	44.65	44.89	45.02	45.15	45.27	45.67	45.89	46.09	46.24	46.37	46.58	46.69	46.81	46.85	46.90	47.04	47.21	47.33
9	42.47	42.81	43.15	43.37	43.73	43.91	44.12	44.36	44.66	44.85	45.05	45.19	45.29	45.52	45.56	45.66	45.81	45.96	46.10	46.31	46.37
10	38.81	39.00	39.34	39.67	40.00	40.27	40.65	40.84	41.16	41.30	41.57	41.76	41.98	42.21	42.44	42.65	42.84	43.10	43.29	43.64	43.85

300 yds Average Score – Average Conditions

Bull Ø												Prop'd		ICFRA				NRA			
Inches	3.84	3.94	4.04	4.13	4.23	4.33	4.43	4.53	4.63	4.72	4.82	4.92	5.02	5.12	5.22	5.31	5.41	5.50	5.61	5.71	5.81
mm	97.50	100.00	102.50	105.00	107.50	110.00	112.50	115.00	117.50	120.00	122.50	125.00	127.50	130.00	132.50	135.00	137.50	139.70	142.50	145.00	147.50
MoA	1.320	1.351	1.383	1.414	1.445	1.477	1.508	1.539	1.571	1.602	1.633	1.665	1.696	1.727	1.759	1.790	1.821	1.849	1.884	1.915	1.947
Skill Level																					
1	47.45	47.62	47.79	47.96	48.09	48.27	48.38	48.49	48.56	48.70	48.82	48.92	48.99	49.09	49.14	49.17	49.22	49.28	49.34	49.40	49.49
2	46.41	46.71	46.91	47.11	47.25	47.43	47.62	47.75	47.89	48.02	48.14	48.21	48.41	48.56	48.65	48.76	48.85	48.93	48.99	49.08	49.14
3	46.00	46.24	46.42	46.64	46.76	47.00	47.23	47.47	47.58	47.73	47.84	47.96	48.15	48.25	48.35	48.51	48.58	48.67	48.81	48.91	48.96
4	45.45	45.64	45.85	46.15	46.35	46.51	46.72	46.90	47.08	47.24	47.38	47.56	47.74	47.86	47.97	48.13	48.24	48.32	48.40	48.47	48.54
5	45.08	45.42	45.68	45.83	46.02	46.31	46.47	46.68	46.83	46.98	47.20	47.35	47.46	47.58	47.67	47.84	47.97	48.10	48.20	48.26	48.36
6	44.71	44.94	45.04	45.28	45.45	45.75	45.86	46.09	46.22	46.44	46.63	46.79	46.99	47.17	47.33	47.48	47.61	47.73	47.88	47.99	48.10
7	43.72	44.02	44.24	44.44	44.66	44.91	45.10	45.35	45.55	45.73	45.93	46.15	46.35	46.55	46.74	46.89	46.99	47.09	47.26	47.39	47.53
8	42.78	43.13	43.43	43.64	43.90	44.13	44.37	44.61	44.88	45.05	45.27	45.53	45.72	45.92	46.13	46.27	46.36	46.44	46.62	46.76	46.93
9	41.54	41.93	42.19	42.51	42.82	43.08	43.29	43.50	43.77	44.04	44.35	44.58	44.81	44.94	45.13	45.27	45.34	45.43	45.57	45.73	45.96
10	37.84	38.23	38.54	38.83	39.13	39.39	39.65	39.92	40.14	40.42	40.62	40.92	41.18	41.42	41.63	41.95	42.13	42.28	42.53	42.75	42.96

300 yds Average Score – Difficult Conditions

Bull Ø												Prop'd		ICFRA				NRA			
Inches	3.84	3.94	4.04	4.13	4.23	4.33	4.43	4.53	4.63	4.72	4.82	4.92	5.02	5.12	5.22	5.31	5.41	5.50	5.61	5.71	5.81
mm	97.50	100.00	102.50	105.00	107.50	110.00	112.50	115.00	117.50	120.00	122.50	125.00	127.50	130.00	132.50	135.00	137.50	139.70	142.50	145.00	147.50
MoA	1.320	1.351	1.383	1.414	1.445	1.477	1.508	1.539	1.571	1.602	1.633	1.665	1.696	1.727	1.759	1.790	1.821	1.849	1.884	1.915	1.947
Skill Level																					
1	46.75	46.98	47.14	47.39	47.51	47.72	47.84	48.00	48.19	48.31	48.45	48.51	48.69	48.77	48.86	48.98	49.02	49.09	49.13	49.15	49.18
2	45.98	46.24	46.55	46.79	46.98	47.16	47.30	47.45	47.66	47.86	47.93	48.04	48.19	48.32	48.40	48.50	48.57	48.62	48.69	48.74	48.78
3	45.56	45.83	46.11	46.33	46.49	46.63	46.81	46.96	47.19	47.30	47.47	47.63	47.78	48.04	48.18	48.26	48.34	48.38	48.43	48.51	48.56
4	44.95	45.16	45.41	45.63	45.87	46.07	46.18	46.32	46.57	46.71	46.89	47.01	47.13	47.37	47.56	47.65	47.82	47.89	48.00	48.09	48.19
5	44.59	44.81	45.07	45.30	45.55	45.77	45.90	46.04	46.28	46.44	46.61	46.73	46.85	47.07	47.27	47.38	47.56	47.65	47.78	47.88	47.98
6	43.83	44.13	44.41	44.70	44.89	45.14	45.39	45.54	45.74	45.91	46.10	46.23	46.35	46.54	46.78	46.93	47.05	47.18	47.38	47.47	47.55
7	43.20	43.52	43.77	44.04	44.26	44.54	44.81	44.99	45.19	45.38	45.56	45.77	45.90	46.10	46.30	46.50	46.61	46.74	46.92	47.01	47.09
8	42.44	42.77	42.98	43.22	43.48	43.79	44.09	44.31	44.51	44.71	44.89	45.20	45.34	45.55	45.72	45.97	46.07	46.19	46.34	46.44	46.52
9	41.06	41.35	41.64	42.01	42.34	42.66	42.95	43.22	43.41	43.63	43.83	44.06	44.22	44.45	44.66	44.84	44.98	45.12	45.31	45.44	45.56
10	37.50	37.75	38.13	38.53	38.90	39.27	39.51	39.84	40.06	40.41	40.66	40.89	41.12	41.39	41.61	41.78	41.96	42.12	42.34	42.51	42.71

500 yds Average Score – All Conditions

Bull Ø									Prop'd							ICFRA		NRA			
Inches	7.87	8.03	8.19	8.35	8.50	8.66	8.86	8.98	9.06	9.29	9.45	9.61	9.76	9.92	10.08	10.24	10.39	10.50	10.63	10.79	10.94
mm	200.00	204.00	208.00	212.00	216.00	220.00	225.00	228.00	230.00	236.00	240.00	244.00	248.00	252.00	256.00	260.00	264.00	266.70	270.00	274.00	278.00
MoA	1.563	1.593	1.623	1.653	1.683	1.713	1.751	1.773	1.788	1.833	1.863	1.893	1.924	1.954	1.984	2.014	2.044	2.064	2.089	2.119	2.149
Skill Level																					
1	47.13	47.27	47.42	47.57	47.73	47.85	48.02	48.11	48.14	48.29	48.40	48.50	48.58	48.66	48.74	48.84	48.87	48.93	48.96	49.02	49.07
2	46.53	46.66	46.78	46.93	47.06	47.24	47.41	47.51	47.57	47.75	47.86	47.99	48.10	48.19	48.28	48.42	48.47	48.54	48.59	48.65	48.73
3	46.07	46.24	46.42	46.58	46.71	46.87	47.04	47.13	47.20	47.38	47.51	47.62	47.74	47.86	47.97	48.11	48.15	48.26	48.27	48.32	48.40
4	45.38	45.58	45.76	45.89	46.10	46.29	46.49	46.61	46.68	46.93	47.05	47.21	47.32	47.43	47.56	47.72	47.72	47.88	47.86	47.97	48.06
5	44.99	45.21	45.40	45.54	45.74	45.92	46.14	46.26	46.33	46.57	46.72	46.88	47.00	47.10	47.23	47.45	47.44	47.63	47.59	47.69	47.78
6	44.44	44.69	44.90	45.08	45.26	45.39	45.63	45.76	45.82	46.03	46.22	46.37	46.50	46.61	46.74	47.04	47.04	47.26	47.17	47.26	47.34
7	44.10	44.36	44.57	44.75	44.92	45.06	45.29	45.42	45.49	45.71	45.89	46.04	46.19	46.30	46.43	46.77	46.74	47.00	46.88	46.98	47.08
8	43.42	43.68	43.87	44.06	44.22	44.39	44.58	44.71	44.82	45.06	45.20	45.37	45.55	45.68	45.82	46.20	46.12	46.44	46.28	46.42	46.54
9	42.17	42.40	42.59	42.79	42.97	43.15	43.36	43.47	43.57	43.82	43.94	44.12	44.30	44.44	44.59	45.08	44.89	45.39	45.09	45.24	45.37
10	39.88	40.08	40.29	40.50	40.70	40.89	41.14	41.24	41.30	41.51	41.64	41.83	41.97	42.12	42.29	42.91	42.59	43.34	42.84	42.96	43.10

500 yds Average Score – Easy Conditions

Bull Ø									Prop'd							ICFRA		NRA			
Inches	7.87	8.03	8.19	8.35	8.50	8.66	8.86	8.98	9.06	9.29	9.45	9.61	9.76	9.92	10.08	10.24	10.39	10.50	10.63	10.79	10.94
mm	200.00	204.00	208.00	212.00	216.00	220.00	225.00	228.00	230.00	236.00	240.00	244.00	248.00	252.00	256.00	260.00	264.00	266.70	270.00	274.00	278.00
MoA	1.563	1.593	1.623	1.653	1.683	1.713	1.751	1.773	1.788	1.833	1.863	1.893	1.924	1.954	1.984	2.014	2.044	2.064	2.089	2.119	2.149
Skill Level																					
1	48.55	48.67	48.74	48.86	48.96	49.01	49.08	49.10	49.13	49.21	49.27	49.30	49.35	49.44	49.46	49.48	49.50	49.52	49.55	49.58	49.62
2	47.02	47.15	47.27	47.44	47.59	47.75	47.91	48.01	48.03	48.26	48.32	48.52	48.58	48.69	48.78	48.89	48.92	48.99	49.02	49.05	49.12
3	46.86	47.00	47.13	47.31	47.45	47.62	47.79	47.91	47.92	48.15	48.22	48.41	48.47	48.58	48.67	48.78	48.81	48.90	48.92	48.95	49.03
4	46.44	46.60	46.78	46.96	47.06	47.21	47.39	47.49	47.52	47.75	47.86	47.99	48.09	48.22	48.31	48.42	48.46	48.57	48.58	48.62	48.69
5	46.09	46.27	46.48	46.66	46.73	46.88	47.06	47.15	47.19	47.41	47.55	47.65	47.77	47.92	48.01	48.12	48.17	48.30	48.29	48.34	48.41
6	45.59	45.85	46.07	46.17	46.36	46.46	46.70	46.78	46.84	47.10	47.21	47.37	47.50	47.57	47.75	47.88	47.91	48.03	48.02	48.12	48.21
7	44.66	44.88	45.15	45.33	45.57	45.70	45.99	46.05	46.11	46.31	46.46	46.64	46.77	46.84	47.00	47.31	47.33	47.57	47.43	47.50	47.55
8	44.02	44.26	44.44	44.60	44.80	44.96	45.21	45.32	45.40	45.67	45.82	46.02	46.16	46.29	46.43	46.81	46.74	47.02	46.89	47.00	47.09
9	43.09	43.34	43.48	43.64	43.82	44.00	44.23	44.37	44.46	44.75	44.88	45.09	45.24	45.40	45.55	45.99	45.85	46.21	46.03	46.17	46.30
10	40.64	40.87	41.07	41.36	41.51	41.71	41.95	42.09	42.15	42.34	42.45	42.64	42.78	42.91	43.10	43.65	43.43	44.06	43.63	43.77	43.91

500 yds Average Score – Average Conditions

Bull Ø									Prop'd							ICFRA		NRA			
Inches	7.87	8.03	8.19	8.35	8.50	8.66	8.86	8.98	9.06	9.29	9.45	9.61	9.76	9.92	10.08	10.24	10.39	10.50	10.63	10.79	10.94
mm	200.00	204.00	208.00	212.00	216.00	220.00	225.00	228.00	230.00	236.00	240.00	244.00	248.00	252.00	256.00	260.00	264.00	266.70	270.00	274.00	278.00
MoA	1.563	1.593	1.623	1.653	1.683	1.713	1.751	1.773	1.788	1.833	1.863	1.893	1.924	1.954	1.984	2.014	2.044	2.064	2.089	2.119	2.149
Skill Level																					
1	47.06	47.19	47.35	47.52	47.63	47.79	47.94	48.02	48.08	48.24	48.36	48.43	48.51	48.63	48.69	48.78	48.85	48.89	48.91	48.97	49.03
2	46.70	46.82	46.94	47.05	47.17	47.33	47.47	47.56	47.63	47.83	47.94	48.03	48.14	48.21	48.31	48.43	48.46	48.53	48.58	48.66	48.71
3	45.81	45.97	46.14	46.29	46.51	46.72	46.88	46.99	47.06	47.25	47.39	47.55	47.64	47.73	47.86	48.02	48.03	48.15	48.15	48.21	48.29
4	45.38	45.57	45.73	45.88	46.10	46.33	46.49	46.62	46.68	46.88	47.04	47.22	47.32	47.40	47.52	47.70	47.71	47.86	47.83	47.91	47.99
5	45.10	45.32	45.47	45.63	45.84	46.03	46.21	46.35	46.41	46.61	46.76	46.93	47.05	47.13	47.25	47.47	47.46	47.64	47.58	47.67	47.76
6	44.62	44.89	45.03	45.20	45.37	45.52	45.72	45.86	45.93	46.12	46.28	46.42	46.57	46.67	46.79	47.05	47.03	47.25	47.15	47.25	47.34
7	44.14	44.42	44.58	44.76	44.91	45.05	45.25	45.39	45.48	45.67	45.82	45.96	46.14	46.25	46.38	46.68	46.64	46.90	46.77	46.89	46.99
8	43.43	43.68	43.88	44.09	44.22	44.40	44.58	44.70	44.83	45.01	45.12	45.29	45.54	45.67	45.81	46.14	46.07	46.41	46.23	46.39	46.52
9	42.20	42.41	42.62	42.83	42.98	43.18	43.37	43.47	43.58	43.77	43.88	44.08	44.31	44.47	44.62	45.09	44.90	45.43	45.10	45.26	45.39
10	39.91	40.07	40.26	40.46	40.67	40.85	41.09	41.16	41.21	41.44	41.57	41.79	41.96	42.14	42.30	43.01	42.61	43.45	42.88	42.98	43.10

500 yds Average Score – Difficult Conditions

Bull Ø									Prop'd							ICFRA		NRA			
Inches	7.87	8.03	8.19	8.35	8.50	8.66	8.86	8.98	9.06	9.29	9.45	9.61	9.76	9.92	10.08	10.24	10.39	10.50	10.63	10.79	10.94
mm	200.00	204.00	208.00	212.00	216.00	220.00	225.00	228.00	230.00	236.00	240.00	244.00	248.00	252.00	256.00	260.00	264.00	266.70	270.00	274.00	278.00
MoA	1.563	1.593	1.623	1.653	1.683	1.713	1.751	1.773	1.788	1.833	1.863	1.893	1.924	1.954	1.984	2.014	2.044	2.064	2.089	2.119	2.149
Skill Level																					
1	46.35	46.47	46.74	46.83	47.00	47.14	47.36	47.50	47.53	47.71	47.88	47.97	48.05	48.11	48.19	48.33	48.36	48.41	48.47	48.55	48.61
2	45.53	45.71	45.90	46.12	46.25	46.45	46.60	46.72	46.78	46.95	47.10	47.27	47.39	47.50	47.59	47.77	47.83	47.94	47.94	48.00	48.11
3	45.04	45.25	45.44	45.63	45.80	46.00	46.17	46.31	46.37	46.61	46.74	46.92	47.04	47.16	47.25	47.44	47.46	47.62	47.59	47.69	47.79
4	44.45	44.64	44.81	44.94	45.16	45.39	45.64	45.79	45.89	46.19	46.30	46.45	46.59	46.75	46.84	47.08	47.03	47.30	47.24	47.40	47.50
5	43.61	43.87	44.13	44.33	44.48	44.61	44.84	45.00	45.07	45.33	45.60	45.73	45.86	45.98	46.12	46.51	46.48	46.74	46.68	46.76	46.88
6	43.46	43.72	43.97	44.17	44.33	44.46	44.68	44.83	44.91	45.19	45.44	45.57	45.69	45.82	45.95	46.36	46.31	46.59	46.51	46.60	46.72
7	43.25	43.51	43.75	43.95	44.12	44.26	44.46	44.60	44.70	44.98	45.21	45.34	45.47	45.59	45.73	46.15	46.09	46.39	46.28	46.38	46.50
8	42.56	42.83	43.04	43.24	43.42	43.59	43.75	43.86	44.00	44.32	44.47	44.60	44.74	44.86	44.97	45.49	45.36	45.72	45.52	45.67	45.79
9	41.18	41.42	41.66	41.82	42.04	42.22	42.46	42.56	42.65	42.92	43.07	43.20	43.30	43.40	43.55	44.12	43.87	44.46	44.10	44.24	44.40
10	39.39	39.60	39.88	40.01	40.24	40.43	40.73	40.83	40.88	41.11	41.28	41.41	41.48	41.58	41.75	42.33	42.02	42.74	42.30	42.43	42.60

600 yds Average Score – All Conditions

Bull Ø										ICFRA Prop'd								NRA			
Inches	9.65	9.84	10.04	10.24	10.43	10.63	10.83	11.02	11.22	11.42	11.61	11.81	12.01	12.20	12.40	12.60	12.80	13.00	13.19	13.39	13.58
mm	245.00	250.00	255.00	260.00	265.00	270.00	275.00	280.00	285.00	290.00	295.00	300.00	305.00	310.00	315.00	320.00	325.00	330.20	335.00	340.00	345.00
MoA	1.584	1.616	1.647	1.678	1.709	1.741	1.772	1.803	1.835	1.866	1.897	1.929	1.960	1.991	2.023	2.054	2.085	2.118	2.148	2.179	2.211
Skill Level																					
1	47.22	47.37	47.50	47.64	47.77	47.88	48.02	48.11	48.22	48.35	48.42	48.51	48.57	48.62	48.70	48.78	48.83	48.89	48.95	49.01	49.04
2	46.54	46.62	46.72	46.94	47.19	47.31	47.44	47.59	47.76	47.87	47.92	47.99	48.15	48.22	48.30	48.40	48.50	48.62	48.70	48.75	48.84
3	46.07	46.22	46.37	46.56	46.77	46.94	47.08	47.23	47.39	47.54	47.60	47.71	47.84	47.93	48.02	48.11	48.20	48.31	48.39	48.46	48.54
4	45.64	45.83	46.04	46.20	46.38	46.58	46.74	46.88	47.03	47.22	47.29	47.43	47.54	47.65	47.73	47.83	47.90	48.00	48.09	48.17	48.25
5	45.41	45.58	45.76	45.98	46.18	46.34	46.49	46.62	46.76	46.94	47.01	47.14	47.25	47.34	47.42	47.51	47.59	47.70	47.79	47.88	47.99
6	44.88	45.05	45.24	45.45	45.66	45.81	45.98	46.15	46.31	46.50	46.57	46.70	46.83	46.93	47.02	47.11	47.21	47.32	47.41	47.50	47.62
7	44.37	44.57	44.77	44.95	45.16	45.33	45.50	45.74	45.91	46.13	46.20	46.33	46.50	46.59	46.71	46.80	46.90	47.04	47.11	47.20	47.31
8	43.54	43.74	43.94	44.14	44.33	44.50	44.70	44.93	45.13	45.37	45.43	45.57	45.74	45.87	46.00	46.11	46.23	46.37	46.45	46.55	46.66
9	42.62	42.84	43.02	43.25	43.42	43.60	43.81	44.02	44.22	44.49	44.52	44.68	44.83	45.00	45.13	45.27	45.41	45.57	45.65	45.77	45.89
10	39.48	39.71	39.96	40.15	40.34	40.55	40.70	40.87	41.05	41.38	41.36	41.51	41.66	41.83	42.03	42.19	42.36	42.72	42.69	42.84	42.99

600 yds Average Score – Easy Conditions

Bull Ø										ICFRA Prop'd								NRA			
Inches	9.65	9.84	10.04	10.24	10.43	10.63	10.83	11.02	11.22	11.42	11.61	11.81	12.01	12.20	12.40	12.60	12.80	13.00	13.19	13.39	13.58
mm	245.00	250.00	255.00	260.00	265.00	270.00	275.00	280.00	285.00	290.00	295.00	300.00	305.00	310.00	315.00	320.00	325.00	330.20	335.00	340.00	345.00
MoA	1.584	1.616	1.647	1.678	1.709	1.741	1.772	1.803	1.835	1.866	1.897	1.929	1.960	1.991	2.023	2.054	2.085	2.118	2.148	2.179	2.211
Skill Level																					
1	47.99	48.10	48.25	48.41	48.50	48.61	48.76	48.83	48.88	48.95	49.00	49.04	49.09	49.12	49.18	49.21	49.24	49.30	49.37	49.42	49.44
2	47.05	47.15	47.31	47.49	47.66	47.79	47.89	48.00	48.16	48.27	48.36	48.45	48.52	48.55	48.61	48.69	48.77	48.86	48.93	48.97	49.04
3	46.59	46.69	46.86	47.11	47.34	47.52	47.61	47.72	47.88	48.01	48.10	48.21	48.30	48.35	48.39	48.51	48.58	48.70	48.78	48.82	48.87
4	46.21	46.38	46.56	46.77	46.96	47.09	47.25	47.38	47.49	47.66	47.75	47.85	47.96	48.07	48.13	48.18	48.25	48.35	48.42	48.51	48.61
5	46.08	46.22	46.37	46.58	46.77	46.86	46.98	47.12	47.26	47.43	47.52	47.60	47.72	47.84	47.90	47.95	48.01	48.09	48.16	48.25	48.39
6	45.19	45.34	45.51	45.66	45.86	46.01	46.14	46.34	46.53	46.80	46.90	47.04	47.18	47.27	47.42	47.51	47.60	47.69	47.79	47.85	48.02
7	44.59	44.75	44.93	45.08	45.27	45.45	45.59	45.81	46.01	46.31	46.39	46.55	46.70	46.80	46.96	47.08	47.17	47.29	47.39	47.44	47.61
8	43.72	43.93	44.10	44.29	44.48	44.68	44.86	45.07	45.23	45.50	45.52	45.67	45.82	45.98	46.12	46.22	46.33	46.49	46.56	46.66	46.79
9	42.97	43.19	43.37	43.57	43.76	43.96	44.16	44.36	44.51	44.77	44.77	44.92	45.07	45.24	45.38	45.50	45.61	45.82	45.87	45.99	46.10
10	39.98	40.19	40.41	40.62	40.79	40.97	41.16	41.34	41.52	41.79	41.79	41.90	42.08	42.25	42.45	42.61	42.79	43.16	43.13	43.26	43.39

600 yds Average Score – Average Conditions

Bull Ø										ICFRA Prop'd								NRA			
Inches	9.65	9.84	10.04	10.24	10.43	10.63	10.83	11.02	11.22	11.42	11.61	11.81	12.01	12.20	12.40	12.60	12.80	13.00	13.19	13.39	13.58
mm	245.00	250.00	255.00	260.00	265.00	270.00	275.00	280.00	285.00	290.00	295.00	300.00	305.00	310.00	315.00	320.00	325.00	330.20	335.00	340.00	345.00
MoA	1.584	1.616	1.647	1.678	1.709	1.741	1.772	1.803	1.835	1.866	1.897	1.929	1.960	1.991	2.023	2.054	2.085	2.118	2.148	2.179	2.211
Skill Level																					
1	47.19	47.35	47.49	47.63	47.74	47.85	47.96	48.02	48.18	48.32	48.42	48.49	48.54	48.59	48.66	48.76	48.83	48.85	48.94	49.00	49.03
2	46.49	46.64	46.77	46.94	47.12	47.27	47.47	47.61	47.74	47.90	47.96	48.04	48.16	48.26	48.31	48.42	48.46	48.57	48.63	48.70	48.76
3	46.19	46.36	46.52	46.68	46.85	47.00	47.15	47.29	47.44	47.60	47.69	47.78	47.89	48.01	48.09	48.18	48.24	48.34	48.40	48.48	48.53
4	45.74	45.92	46.08	46.26	46.44	46.61	46.74	46.88	47.04	47.23	47.31	47.42	47.52	47.64	47.73	47.82	47.90	48.00	48.08	48.16	48.22
5	45.22	45.38	45.53	45.76	45.97	46.17	46.31	46.44	46.62	46.84	46.89	47.02	47.11	47.21	47.29	47.41	47.51	47.61	47.72	47.79	47.89
6	44.84	44.99	45.14	45.40	45.63	45.84	45.99	46.12	46.30	46.55	46.58	46.72	46.81	46.90	46.97	47.10	47.22	47.33	47.46	47.52	47.64
7	44.27	44.46	44.61	44.83	45.03	45.17	45.40	45.64	45.82	46.00	46.05	46.20	46.40	46.48	46.62	46.70	46.79	46.96	46.99	47.10	47.18
8	43.49	43.68	43.86	44.08	44.26	44.42	44.67	44.90	45.12	45.35	45.40	45.56	45.74	45.85	45.96	46.07	46.19	46.33	46.41	46.53	46.64
9	42.52	42.71	42.90	43.13	43.29	43.49	43.76	43.96	44.25	44.55	44.58	44.75	44.90	45.06	45.14	45.28	45.43	45.55	45.68	45.82	45.95
10	39.49	39.74	40.06	40.23	40.45	40.61	40.74	40.89	41.11	41.44	41.41	41.59	41.75	41.95	42.09	42.21	42.35	42.71	42.73	42.91	43.08

600 yds Average Score – Difficult Conditions

Bull Ø										ICFRA Prop'd								NRA			
Inches	9.65	9.84	10.04	10.24	10.43	10.63	10.83	11.02	11.22	11.42	11.61	11.81	12.01	12.20	12.40	12.60	12.80	13.00	13.19	13.39	13.58
mm	245.00	250.00	255.00	260.00	265.00	270.00	275.00	280.00	285.00	290.00	295.00	300.00	305.00	310.00	315.00	320.00	325.00	330.20	335.00	340.00	345.00
MoA	1.584	1.616	1.647	1.678	1.709	1.741	1.772	1.803	1.835	1.866	1.897	1.929	1.960	1.991	2.023	2.054	2.085	2.118	2.148	2.179	2.211
Skill Level																					
1	46.58	46.69	46.90	47.06	47.18	47.34	47.43	47.51	47.67	47.78	47.84	47.90	48.02	48.12	48.24	48.33	48.42	48.53	48.58	48.65	48.71
2	45.84	45.98	46.14	46.31	46.51	46.68	46.78	46.93	47.11	47.24	47.29	47.38	47.56	47.67	47.80	47.88	48.01	48.12	48.21	48.29	48.39
3	45.20	45.38	45.54	45.70	45.94	46.14	46.27	46.44	46.64	46.81	46.83	46.96	47.16	47.26	47.39	47.48	47.61	47.71	47.83	47.92	48.04
4	44.87	45.05	45.28	45.42	45.63	45.88	46.03	46.17	46.38	46.60	46.61	46.77	46.92	47.02	47.11	47.23	47.31	47.42	47.54	47.64	47.76
5	44.77	44.96	45.18	45.42	45.61	45.76	45.95	46.07	46.18	46.32	46.40	46.56	46.69	46.77	46.87	46.94	47.04	47.17	47.24	47.37	47.48
6	44.08	44.30	44.57	44.76	44.96	45.14	45.32	45.54	45.68	45.86	45.94	46.06	46.21	46.32	46.41	46.49	46.60	46.74	46.83	46.94	47.03
7	43.64	43.89	44.18	44.35	44.55	44.76	44.92	45.20	45.37	45.57	45.65	45.75	45.91	46.03	46.12	46.21	46.33	46.47	46.56	46.67	46.75
8	43.00	43.24	43.49	43.69	43.88	44.06	44.23	44.49	44.67	44.90	44.97	45.09	45.25	45.40	45.53	45.66	45.79	45.93	46.01	46.11	46.20
9	41.89	42.12	42.29	42.55	42.72	42.88	43.06	43.26	43.44	43.71	43.75	43.91	44.06	44.23	44.42	44.59	44.75	44.93	44.96	45.07	45.19
10	39.62	39.84	40.02	40.23	40.41	40.68	40.85	41.02	41.19	41.55	41.53	41.69	41.82	41.96	42.19	42.40	42.57	42.86	42.82	42.97	43.11

900 yds Average Score – All Conditions

Bull Ø					ICFRA										Consid-ered			NRA Prop'd			
Inches	18.66	18.98	19.29	19.61	20.08	20.24	20.55	20.87	21.18	21.50	21.81	22.00	22.44	22.76	23.00	23.39	23.70	24.00	24.33	24.65	24.96
mm	474.00	482.00	490.00	498.00	510.00	514.00	522.00	530.00	538.00	546.00	554.00	558.80	570.00	578.00	584.20	594.00	602.00	609.60	618.00	626.00	634.00
MoA	2.013	2.046	2.080	2.113	2.163	2.180	2.213	2.247	2.280	2.313	2.347	2.367	2.414	2.447	2.473	2.514	2.547	2.579	2.614	2.648	2.681
Skill Level																					
1	46.68	46.85	46.98	47.05	46.68	47.28	47.37	47.45	47.55	47.64	47.72	47.76	47.85	47.94	47.99	48.08	48.15	48.24	48.28	48.36	48.43
2	46.05	46.17	46.33	46.43	45.60	46.60	46.71	46.79	46.90	47.00	47.09	47.15	47.29	47.37	47.43	47.53	47.59	47.72	47.73	47.78	47.82
3	45.54	45.66	45.79	45.90	44.87	46.10	46.20	46.28	46.38	46.47	46.56	46.62	46.75	46.83	46.91	47.02	47.09	47.24	47.22	47.29	47.35
4	45.24	45.36	45.48	45.59	44.46	45.81	45.90	45.99	46.08	46.16	46.24	46.31	46.43	46.52	46.60	46.72	46.80	46.97	46.92	47.01	47.08
5	44.80	44.92	45.01	45.14	43.84	45.39	45.46	45.56	45.64	45.70	45.78	45.85	45.97	46.05	46.14	46.27	46.36	46.56	46.47	46.58	46.68
6	44.11	44.22	44.31	44.43	42.70	44.65	44.72	44.82	44.91	44.99	45.08	45.13	45.27	45.34	45.42	45.55	45.66	45.94	45.81	45.89	45.96
7	43.67	43.79	43.88	43.99	41.98	44.19	44.26	44.36	44.46	44.55	44.64	44.68	44.83	44.89	44.97	45.10	45.21	45.55	45.39	45.45	45.52
8	43.19	43.29	43.39	43.50	41.19	43.70	43.77	43.87	43.96	44.04	44.13	44.16	44.30	44.37	44.44	44.57	44.67	45.02	44.85	44.92	44.99
9	42.06	42.14	42.26	42.37	39.34	42.55	42.63	42.74	42.79	42.86	42.95	42.97	43.08	43.16	43.22	43.34	43.41	43.78	43.59	43.70	43.77
10	38.99	39.06	39.19	39.30	36.09	39.48	39.56	39.67	39.71	39.77	39.86	39.88	39.98	40.07	40.13	40.25	40.31	40.69	40.49	40.61	40.68

900 yds Average Score – Easy Conditions

Bull Ø					ICFRA										Consid-ered			NRA Prop'd			
Inches	18.66	18.98	19.29	19.61	20.08	20.24	20.55	20.87	21.18	21.50	21.81	22.00	22.44	22.76	23.00	23.39	23.70	24.00	24.33	24.65	24.96
mm	474.00	482.00	490.00	498.00	510.00	514.00	522.00	530.00	538.00	546.00	554.00	558.80	570.00	578.00	584.20	594.00	602.00	609.60	618.00	626.00	634.00
MoA	2.013	2.046	2.080	2.113	2.163	2.180	2.213	2.247	2.280	2.313	2.347	2.367	2.414	2.447	2.473	2.514	2.547	2.579	2.614	2.648	2.681
Skill Level																					
1	47.56	47.70	47.81	47.95	47.83	48.14	48.23	48.35	48.45	48.51	48.56	48.62	48.71	48.78	48.82	48.88	48.94	48.96	48.99	49.02	49.07
2	47.22	47.38	47.56	47.64	47.43	47.83	47.85	47.93	48.03	48.15	48.21	48.24	48.31	48.38	48.43	48.50	48.57	48.63	48.65	48.72	48.77
3	46.94	47.09	47.25	47.32	46.98	47.52	47.56	47.62	47.75	47.88	47.96	47.99	48.11	48.17	48.21	48.28	48.34	48.39	48.43	48.49	48.53
4	46.33	46.44	46.54	46.65	45.93	46.79	46.88	46.95	47.10	47.23	47.34	47.37	47.55	47.62	47.67	47.77	47.82	47.89	47.94	48.00	48.06
5	46.00	46.11	46.22	46.34	45.51	46.50	46.58	46.65	46.79	46.90	47.01	47.04	47.20	47.28	47.34	47.45	47.50	47.58	47.63	47.73	47.81
6	45.67	45.78	45.89	46.02	45.08	46.21	46.27	46.34	46.48	46.57	46.68	46.71	46.84	46.93	47.00	47.14	47.18	47.27	47.32	47.45	47.57
7	45.38	45.49	45.60	45.74	44.70	45.95	46.00	46.07	46.20	46.27	46.38	46.42	46.52	46.63	46.71	46.85	46.90	47.00	47.04	47.20	47.34
8	44.40	44.53	44.65	44.80	43.30	45.00	45.04	45.12	45.26	45.36	45.45	45.49	45.60	45.68	45.78	45.94	46.00	46.22	46.16	46.28	46.40
9	43.44	43.57	43.71	43.85	41.84	44.04	44.08	44.17	44.30	44.43	44.51	44.54	44.67	44.73	44.84	45.01	45.09	45.42	45.26	45.32	45.42
10	40.74	40.80	40.94	41.10	37.96	41.29	41.37	41.45	41.47	41.53	41.63	41.65	41.76	41.86	41.94	42.08	42.16	42.55	42.33	42.41	42.53

900 yds Average Score – Average Conditions

Bull Ø					ICFRA										Consid-ered			NRA Prop'd			
Inches	18.66	18.98	19.29	19.61	20.08	20.24	20.55	20.87	21.18	21.50	21.81	22.00	22.44	22.76	23.00	23.39	23.70	24.00	24.33	24.65	24.96
mm	474.00	482.00	490.00	498.00	510.00	514.00	522.00	530.00	538.00	546.00	554.00	558.80	570.00	578.00	584.20	594.00	602.00	609.60	618.00	626.00	634.00
MoA	2.013	2.046	2.080	2.113	2.163	2.180	2.213	2.247	2.280	2.313	2.347	2.367	2.414	2.447	2.473	2.514	2.547	2.579	2.614	2.648	2.681
Skill Level																					
1	46.95	47.03	47.13	47.25	46.99	47.48	47.60	47.67	47.73	47.83	47.89	47.94	48.02	48.07	48.10	48.18	48.21	48.33	48.36	48.43	48.49
2	46.02	46.18	46.42	46.48	45.76	46.66	46.82	46.90	47.01	47.10	47.19	47.25	47.36	47.46	47.54	47.63	47.67	47.81	47.80	47.86	47.90
3	45.46	45.64	45.93	46.00	45.00	46.17	46.33	46.40	46.51	46.63	46.70	46.77	46.89	46.98	47.07	47.16	47.19	47.36	47.31	47.37	47.38
4	45.23	45.40	45.64	45.73	44.64	45.90	46.04	46.14	46.23	46.33	46.41	46.49	46.61	46.70	46.79	46.89	46.94	47.13	47.06	47.12	47.13
5	44.84	45.00	45.17	45.29	44.04	45.47	45.57	45.70	45.77	45.85	45.92	46.02	46.14	46.24	46.33	46.46	46.53	46.74	46.64	46.70	46.73
6	44.36	44.49	44.58	44.71	43.16	44.89	44.95	45.10	45.16	45.22	45.31	45.41	45.55	45.64	45.71	45.84	45.94	46.21	46.07	46.14	46.18
7	44.02	44.10	44.15	44.25	42.33	44.42	44.48	44.58	44.69	44.73	44.88	44.92	45.11	45.15	45.21	45.29	45.38	45.75	45.57	45.67	45.71
8	43.61	43.69	43.75	43.85	41.66	44.01	44.08	44.20	44.30	44.34	44.48	44.52	44.69	44.73	44.78	44.87	44.95	45.32	45.14	45.24	45.27
9	42.53	42.61	42.69	42.78	39.85	42.91	43.01	43.18	43.25	43.30	43.41	43.44	43.56	43.61	43.64	43.75	43.80	44.17	43.99	44.10	44.11
10	40.07	40.16	40.25	40.33	36.99	40.45	40.56	40.76	40.82	40.87	40.96	40.99	41.07	41.13	41.16	41.27	41.30	41.67	41.50	41.62	41.62

900 yds Average Score – Difficult Conditions

Bull Ø					ICFRA										Consid-ered			NRA Prop'd			
Inches	18.66	18.98	19.29	19.61	20.08	20.24	20.55	20.87	21.18	21.50	21.81	22.00	22.44	22.76	23.00	23.39	23.70	24.00	24.33	24.65	24.96
mm	474.00	482.00	490.00	498.00	510.00	514.00	522.00	530.00	538.00	546.00	554.00	558.80	570.00	578.00	584.20	594.00	602.00	609.60	618.00	626.00	634.00
MoA	2.013	2.046	2.080	2.113	2.163	2.180	2.213	2.247	2.280	2.313	2.347	2.367	2.414	2.447	2.473	2.514	2.547	2.579	2.614	2.648	2.681
Skill Level																					
1	45.82	45.99	46.07	46.16	45.43	46.43	46.59	46.65	46.76	46.83	46.90	46.94	47.05	47.17	47.19	47.30	47.41	47.52	47.57	47.70	47.78
2	45.28	45.37	45.47	45.59	44.37	45.84	45.94	46.02	46.07	46.12	46.19	46.27	46.35	46.45	46.53	46.65	46.77	46.98	46.92	47.00	47.05
3	44.63	44.73	44.78	44.85	43.41	45.21	45.33	45.39	45.45	45.51	45.57	45.62	45.75	45.80	45.87	45.97	46.11	46.36	46.19	46.28	46.37
4	44.31	44.42	44.47	44.54	42.89	44.88	45.01	45.08	45.13	45.19	45.25	45.29	45.42	45.48	45.55	45.66	45.82	46.08	45.92	45.98	46.06
5	43.55	43.67	43.72	43.79	41.63	44.10	44.22	44.33	44.34	44.43	44.46	44.50	44.64	44.70	44.76	44.91	45.11	45.40	45.25	45.26	45.33
6	43.09	43.20	43.28	43.33	40.91	43.63	43.74	43.84	43.86	43.95	43.98	44.01	44.15	44.22	44.28	44.42	44.61	44.92	44.76	44.80	44.86
7	42.59	42.69	42.81	42.85	40.19	43.13	43.20	43.27	43.33	43.41	43.46	43.47	43.59	43.68	43.74	43.86	44.01	44.33	44.15	44.27	44.33
8	42.15	42.23	42.39	42.41	39.54	42.69	42.73	42.76	42.86	42.93	42.98	42.99	43.09	43.20	43.26	43.36	43.47	43.79	43.61	43.79	43.86
9	40.76	40.83	41.03	41.03	37.89	41.29	41.29	41.29	41.43	41.49	41.56	41.56	41.63	41.76	41.83	41.89	41.96	42.29	42.09	42.36	42.43
10	37.96	38.03	38.23	38.23	35.09	38.49	38.49	38.49	38.63	38.69	38.76	38.76	38.83	38.96	39.03	39.09	39.16	39.49	39.29	39.56	39.63

1000 yds Average Score – All Conditions

Bull Ø					ICFRA										Consid-ered			NRA Prop'd			
Inches	18.66	18.98	19.29	19.61	20.08	20.24	20.55	20.87	21.18	21.50	21.81	22.00	22.44	22.76	23.00	23.39	23.70	24.00	24.33	24.65	24.96
mm	474.00	482.00	490.00	498.00	510.00	514.00	522.00	530.00	538.00	546.00	554.00	558.80	570.00	578.00	584.20	594.00	602.00	609.60	618.00	626.00	634.00
MoA	1.811	1.842	1.872	1.902	1.947	1.962	1.992	2.022	2.052	2.082	2.112	2.130	2.172	2.202	2.226	2.263	2.293	2.321	2.353	2.383	2.413
Skill Level																					
1	44.93	45.02	45.12	45.22	43.93	45.41	45.50	45.67	45.72	45.83	45.91	45.96	46.10	46.19	46.26	46.33	46.41	46.64	46.55	46.60	46.68
2	44.20	44.30	44.41	44.49	42.76	44.68	44.78	44.87	44.96	45.03	45.10	45.15	45.26	45.35	45.44	45.56	45.63	45.89	45.76	45.85	45.90
3	43.68	43.76	43.84	43.92	42.01	44.12	44.23	44.35	44.43	44.48	44.56	44.61	44.70	44.82	44.94	45.09	45.16	45.48	45.30	45.39	45.44
4	43.29	43.37	43.47	43.55	41.44	43.76	43.85	43.97	44.06	44.11	44.19	44.24	44.34	44.45	44.56	44.70	44.78	45.15	44.93	45.02	45.06
5	42.46	42.56	42.72	42.87	40.20	43.04	43.12	43.18	43.28	43.35	43.45	43.49	43.64	43.68	43.74	43.79	43.90	44.38	44.08	44.17	44.21
6	41.88	41.93	42.05	42.22	39.32	42.37	42.46	42.55	42.63	42.71	42.77	42.84	43.02	43.06	43.12	43.22	43.34	43.81	43.48	43.57	43.65
7	41.03	41.06	41.16	41.32	37.91	41.44	41.54	41.64	41.71	41.79	41.82	41.90	42.07	42.12	42.17	42.28	42.38	42.88	42.51	42.58	42.65
8	40.66	40.69	40.78	40.92	37.27	41.03	41.14	41.24	41.30	41.38	41.42	41.49	41.64	41.70	41.75	41.85	41.93	42.46	42.07	42.13	42.19
9	39.45	39.50	39.57	39.65	35.19	39.73	39.86	39.94	39.98	40.07	40.09	40.17	40.25	40.34	40.38	40.44	40.50	41.10	40.63	40.67	40.69
10	36.37	36.42	36.48	36.53	31.72	36.61	36.74	36.81	36.85	36.94	36.96	37.03	37.09	37.18	37.22	37.27	37.31	37.94	37.44	37.48	37.48

1000 yds Average Score – Easy Conditions

Bull Ø					ICFRA										Consid-ered			NRA Prop'd			
Inches	18.66	18.98	19.29	19.61	20.08	20.24	20.55	20.87	21.18	21.50	21.81	22.00	22.44	22.76	23.00	23.39	23.70	24.00	24.33	24.65	24.96
mm	474.00	482.00	490.00	498.00	510.00	514.00	522.00	530.00	538.00	546.00	554.00	558.80	570.00	578.00	584.20	594.00	602.00	609.60	618.00	626.00	634.00
MoA	1.811	1.842	1.872	1.902	1.947	1.962	1.992	2.022	2.052	2.082	2.112	2.130	2.172	2.202	2.226	2.263	2.293	2.321	2.353	2.383	2.413
Skill Level																					
1	46.03	46.08	46.21	46.32	45.57	46.58	46.67	46.72	46.82	46.87	47.00	47.04	47.21	47.25	47.28	47.40	47.46	47.62	47.60	47.64	47.71
2	45.57	45.71	45.82	45.93	44.91	46.12	46.24	46.32	46.36	46.46	46.53	46.60	46.71	46.82	46.86	46.91	47.06	47.18	47.10	47.15	47.23
3	45.21	45.36	45.44	45.53	44.36	45.78	45.89	45.94	46.02	46.12	46.22	46.30	46.39	46.48	46.54	46.60	46.67	46.83	46.77	46.86	46.92
4	44.41	44.53	44.61	44.68	43.15	44.92	45.05	45.12	45.21	45.30	45.37	45.44	45.51	45.60	45.68	45.82	45.88	46.16	46.03	46.15	46.20
5	43.71	43.78	43.88	43.93	42.09	44.14	44.29	44.41	44.48	44.56	44.59	44.62	44.69	44.79	44.89	45.11	45.20	45.60	45.38	45.50	45.55
6	42.83	42.95	43.20	43.34	40.82	43.44	43.53	43.62	43.78	43.95	44.02	44.03	44.18	44.23	44.32	44.41	44.57	44.96	44.81	44.93	44.95
7	42.37	42.45	42.64	42.83	40.01	42.95	43.01	43.06	43.14	43.33	43.36	43.41	43.45	43.54	43.54	43.62	43.84	44.27	44.03	44.22	44.26
8	41.87	41.93	42.11	42.28	39.16	42.40	42.47	42.53	42.61	42.77	42.80	42.86	42.90	43.00	43.00	43.06	43.25	43.75	43.43	43.59	43.62
9	40.24	40.27	40.39	40.51	36.41	40.61	40.72	40.83	40.89	40.98	40.99	41.07	41.11	41.23	41.23	41.26	41.36	42.06	41.48	41.57	41.58
10	37.75	37.75	37.84	37.93	33.25	38.03	38.16	38.30	38.34	38.39	38.39	38.48	38.53	38.66	38.66	38.66	38.71	39.53	38.80	38.84	38.84

1000 yds Average Score – Average Conditions

Bull Ø					ICFRA										Consid-ered			NRA Prop'd			
Inches	18.66	18.98	19.29	19.61	20.08	20.24	20.55	20.87	21.18	21.50	21.81	22.00	22.44	22.76	23.00	23.39	23.70	24.00	24.33	24.65	24.96
mm	474.00	482.00	490.00	498.00	510.00	514.00	522.00	530.00	538.00	546.00	554.00	558.80	570.00	578.00	584.20	594.00	602.00	609.60	618.00	626.00	634.00
MoA	1.811	1.842	1.872	1.902	1.947	1.962	1.992	2.022	2.052	2.082	2.112	2.130	2.172	2.202	2.226	2.263	2.293	2.321	2.353	2.383	2.413
Skill Level																					
1	45.23	45.27	45.35	45.44	44.54	45.71	45.83	46.01	46.03	46.16	46.20	46.24	46.37	46.43	46.53	46.63	46.69	46.90	46.90	47.01	47.02
2	44.43	44.48	44.60	44.69	43.16	44.84	44.94	45.11	45.18	45.26	45.40	45.46	45.55	45.63	45.76	45.87	46.01	46.23	46.06	46.20	46.27
3	43.61	43.63	43.77	43.86	42.11	44.08	44.19	44.42	44.46	44.54	44.72	44.82	44.88	44.96	45.11	45.22	45.35	45.65	45.43	45.59	45.67
4	43.23	43.29	43.43	43.59	41.64	43.80	43.87	44.01	44.04	44.11	44.28	44.40	44.48	44.55	44.64	44.71	44.80	45.26	44.96	45.08	45.15
5	42.68	42.78	42.94	43.19	40.95	43.40	43.41	43.42	43.42	43.48	43.63	43.79	43.89	43.95	43.95	43.96	44.02	44.68	44.27	44.33	44.38
6	42.40	42.40	42.51	42.72	40.44	42.77	42.93	43.08	43.13	43.19	43.19	43.35	43.50	43.50	43.66	43.71	43.77	43.98	43.87	43.92	44.03
7	41.82	41.82	41.89	42.05	39.32	42.09	42.24	42.36	42.40	42.50	42.50	42.65	42.77	42.80	42.92	42.99	43.03	43.31	43.14	43.18	43.26
8	41.34	41.34	41.39	41.51	38.41	41.54	41.68	41.77	41.80	41.94	41.94	42.08	42.17	42.23	42.31	42.40	42.43	42.77	42.54	42.57	42.63
9	40.15	40.15	40.16	40.17	36.16	40.17	40.30	40.31	40.31	40.55	40.55	40.68	40.69	40.80	40.81	40.93	40.94	41.42	41.06	41.06	41.07
10	37.29	37.29	37.29	37.29	33.17	37.29	37.42	37.42	37.42	37.67	37.67	37.79	37.79	37.92	37.92	38.04	38.04	38.54	38.17	38.17	38.17

1000 yds Average Score – Difficult Conditions

Bull Ø					ICFRA										Consid-ered			NRA Prop'd			
Inches	18.66	18.98	19.29	19.61	20.08	20.24	20.55	20.87	21.18	21.50	21.81	22.00	22.44	22.76	23.00	23.39	23.70	24.00	24.33	24.65	24.96
mm	474.00	482.00	490.00	498.00	510.00	514.00	522.00	530.00	538.00	546.00	554.00	558.80	570.00	578.00	584.20	594.00	602.00	609.60	618.00	626.00	634.00
MoA	1.811	1.842	1.872	1.902	1.947	1.962	1.992	2.022	2.052	2.082	2.112	2.130	2.172	2.202	2.226	2.263	2.293	2.321	2.353	2.383	2.413
Skill Level																					
1	43.36	43.45	43.51	43.61	41.43	43.80	43.86	43.95	44.05	44.06	44.12	44.16	44.30	44.44	44.55	44.68	44.71	45.04	44.88	44.89	44.93
2	42.74	42.84	42.90	43.01	40.39	43.24	43.30	43.35	43.43	43.44	43.54	43.55	43.65	43.75	43.79	43.86	43.93	44.36	44.07	44.13	44.18
3	41.88	41.96	42.02	42.14	39.05	42.37	42.46	42.51	42.58	42.60	42.69	42.71	42.86	42.91	42.92	42.99	43.09	43.61	43.19	43.27	43.34
4	41.49	41.55	41.61	41.74	38.48	41.96	42.04	42.11	42.19	42.20	42.29	42.32	42.52	42.56	42.58	42.68	42.76	43.33	42.87	42.92	43.01
5	40.44	40.45	40.48	40.64	36.94	40.83	40.92	41.04	41.13	41.13	41.20	41.26	41.59	41.62	41.65	41.83	41.89	42.56	41.99	41.99	42.11
6	40.19	40.20	40.23	40.38	36.55	40.56	40.66	40.78	40.87	40.87	40.93	40.99	41.32	41.36	41.39	41.57	41.63	42.31	41.73	41.73	41.85
7	39.52	39.57	39.60	39.71	35.43	39.86	39.97	40.06	40.14	40.17	40.22	40.28	40.52	40.56	40.61	40.76	40.81	41.43	40.93	40.95	41.03
8	39.03	39.11	39.15	39.23	34.62	39.36	39.47	39.54	39.61	39.66	39.71	39.76	39.94	39.98	40.04	40.17	40.22	40.79	40.35	40.38	40.43
9	37.81	37.93	37.98	38.02	32.85	38.10	38.23	38.27	38.31	38.39	38.43	38.48	38.56	38.60	38.68	38.77	38.81	39.31	38.98	39.02	39.02
10	34.58	34.70	34.75	34.79	29.62	34.87	35.00	35.04	35.08	35.16	35.20	35.25	35.33	35.37	35.45	35.54	35.58	36.08	35.75	35.79	35.79

Annex F. UK Average Percentage Possibles at Different Target Dimensions

300 yds Average Percentage Possibles – All Conditions

Bull Ø												Prop'd		ICFRA				NRA			
Inches	3.84	3.94	4.04	4.13	4.23	4.33	4.43	4.53	4.63	4.72	4.82	4.92	5.02	5.12	5.22	5.31	5.41	5.50	5.61	5.71	5.81
mm	97.50	100.00	102.50	105.00	107.50	110.00	112.50	115.00	117.50	120.00	122.50	125.00	127.50	130.00	132.50	135.00	137.50	139.70	142.50	145.00	147.50
MoA	1.320	1.351	1.383	1.414	1.445	1.477	1.508	1.539	1.571	1.602	1.633	1.665	1.696	1.727	1.759	1.790	1.821	1.849	1.884	1.915	1.947
Skill Level																					
Overall	0.7%	0.9%	1.2%	1.5%	2.0%	2.5%	3.1%	3.8%	4.6%	5.5%	6.6%	7.8%	9.1%	10.6%	12.2%	14.0%	15.9%	17.7%	20.1%	22.4%	24.8%
1	5.4%	6.7%	8.2%	9.9%	11.8%	13.9%	16.2%	18.7%	21.4%	24.2%	27.2%	30.3%	33.5%	36.8%	40.1%	43.5%	46.8%	49.7%	53.3%	56.5%	59.6%
2	2.5%	3.1%	3.9%	4.9%	6.0%	7.3%	8.7%	10.3%	12.1%	14.1%	16.3%	18.6%	21.1%	23.7%	26.4%	29.2%	32.2%	34.8%	38.2%	41.3%	44.4%
3	1.5%	2.0%	2.5%	3.2%	3.9%	4.8%	5.9%	7.1%	8.4%	9.9%	11.6%	13.4%	15.4%	17.6%	19.9%	22.3%	24.9%	27.2%	30.3%	33.1%	36.0%
4	0.9%	1.2%	1.6%	2.0%	2.5%	3.1%	3.9%	4.7%	5.7%	6.8%	8.1%	9.5%	11.0%	12.7%	14.6%	16.6%	18.7%	20.7%	23.4%	25.8%	28.4%
5	0.7%	0.9%	1.1%	1.5%	1.9%	2.3%	2.9%	3.6%	4.4%	5.3%	6.3%	7.5%	8.8%	10.2%	11.8%	13.5%	15.4%	17.1%	19.5%	21.7%	24.0%
6	0.4%	0.5%	0.7%	0.9%	1.2%	1.5%	1.9%	2.4%	3.0%	3.6%	4.4%	5.3%	6.3%	7.4%	8.6%	10.0%	11.5%	12.9%	14.9%	16.7%	18.7%
7	0.2%	0.3%	0.4%	0.5%	0.7%	0.9%	1.1%	1.4%	1.7%	2.1%	2.6%	3.2%	3.8%	4.6%	5.4%	6.4%	7.5%	8.5%	9.9%	11.4%	12.9%
8	0.1%	0.1%	0.2%	0.2%	0.3%	0.4%	0.6%	0.7%	0.9%	1.1%	1.4%	1.7%	2.1%	2.6%	3.1%	3.7%	4.4%	5.1%	6.1%	7.0%	8.1%
9	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.2%	0.2%	0.3%	0.3%	0.4%	0.6%	0.7%	0.9%	1.1%	1.3%	1.6%	1.9%	2.3%	2.8%	3.3%
10	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%	0.2%	0.3%	0.4%	0.5%	0.6%

300 yds Average Percentage Possibles – Easy Conditions

Bull Ø												Prop'd		ICFRA				NRA			
Inches	3.84	3.94	4.04	4.13	4.23	4.33	4.43	4.53	4.63	4.72	4.82	4.92	5.02	5.12	5.22	5.31	5.41	5.50	5.61	5.71	5.81
mm	97.50	100.00	102.50	105.00	107.50	110.00	112.50	115.00	117.50	120.00	122.50	125.00	127.50	130.00	132.50	135.00	137.50	139.70	142.50	145.00	147.50
MoA	1.320	1.351	1.383	1.414	1.445	1.477	1.508	1.539	1.571	1.602	1.633	1.665	1.696	1.727	1.759	1.790	1.821	1.849	1.884	1.915	1.947
Skill Level																					
Overall	1.0%	1.3%	1.7%	2.2%	2.7%	3.4%	4.2%	5.1%	6.1%	7.3%	8.6%	10.1%	11.7%	13.5%	15.4%	17.5%	19.7%	21.7%	24.5%	27.0%	29.6%
1	8.9%	10.8%	12.9%	15.3%	17.8%	20.6%	23.6%	26.7%	30.0%	33.4%	36.8%	40.4%	43.9%	47.4%	50.9%	54.3%	57.7%	60.5%	64.0%	67.0%	69.8%
2	3.3%	4.2%	5.2%	6.4%	7.8%	9.4%	11.1%	13.1%	15.2%	17.5%	20.0%	22.6%	25.3%	28.2%	31.2%	34.3%	37.4%	40.2%	43.8%	46.9%	50.1%
3	2.1%	2.6%	3.3%	4.2%	5.1%	6.2%	7.5%	9.0%	10.6%	12.4%	14.4%	16.5%	18.8%	21.2%	23.8%	26.5%	29.3%	31.8%	35.1%	38.1%	41.1%
4	1.3%	1.7%	2.2%	2.8%	3.5%	4.3%	5.2%	6.3%	7.5%	8.9%	10.5%	12.2%	14.0%	16.1%	18.2%	20.5%	23.0%	25.2%	28.2%	30.9%	33.7%
5	0.9%	1.2%	1.5%	2.0%	2.5%	3.1%	3.8%	4.7%	5.7%	6.8%	8.0%	9.4%	11.0%	12.7%	14.5%	16.5%	18.6%	20.6%	23.2%	25.7%	28.3%
6	0.6%	0.8%	1.1%	1.4%	1.8%	2.2%	2.8%	3.4%	4.2%	5.0%	6.0%	7.1%	8.4%	9.8%	11.3%	13.0%	14.8%	16.5%	18.8%	21.0%	23.3%
7	0.4%	0.5%	0.7%	0.9%	1.1%	1.4%	1.8%	2.3%	2.8%	3.4%	4.1%	5.0%	5.9%	7.0%	8.2%	9.5%	10.9%	12.3%	14.2%	16.0%	18.0%
8	0.2%	0.2%	0.3%	0.4%	0.6%	0.8%	1.0%	1.2%	1.5%	1.9%	2.4%	2.9%	3.5%	4.2%	5.0%	5.8%	6.8%	7.8%	9.2%	10.5%	11.9%
9	0.0%	0.1%	0.1%	0.1%	0.1%	0.2%	0.3%	0.3%	0.4%	0.6%	0.7%	0.9%	1.1%	1.3%	1.6%	2.0%	2.4%	2.8%	3.4%	4.0%	4.7%
10	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%	0.3%	0.4%

300 yds Average Percentage Possibles – Average Conditions

Bull Ø												Prop'd		ICFRA				NRA			
Inches	3.84	3.94	4.04	4.13	4.23	4.33	4.43	4.53	4.63	4.72	4.82	4.92	5.02	5.12	5.22	5.31	5.41	5.50	5.61	5.71	5.81
mm	97.50	100.00	102.50	105.00	107.50	110.00	112.50	115.00	117.50	120.00	122.50	125.00	127.50	130.00	132.50	135.00	137.50	139.70	142.50	145.00	147.50
MoA	1.320	1.351	1.383	1.414	1.445	1.477	1.508	1.539	1.571	1.602	1.633	1.665	1.696	1.727	1.759	1.790	1.821	1.849	1.884	1.915	1.947
Skill Level																					
Overall	0.7%	0.9%	1.2%	1.5%	1.9%	2.4%	3.0%	3.7%	4.5%	5.4%	6.5%	7.6%	9.0%	10.4%	12.0%	13.8%	15.6%	17.4%	19.8%	22.1%	24.4%
1	4.7%	5.9%	7.2%	8.8%	10.5%	12.5%	14.6%	17.0%	19.5%	22.2%	25.0%	28.0%	31.1%	34.3%	37.5%	40.8%	44.1%	47.0%	50.6%	53.8%	57.0%
2	2.5%	3.2%	4.0%	5.0%	6.1%	7.4%	8.8%	10.4%	12.3%	14.2%	16.4%	18.7%	21.2%	23.8%	26.6%	29.4%	32.4%	35.0%	38.4%	41.5%	44.6%
3	1.4%	1.8%	2.3%	2.9%	3.7%	4.5%	5.5%	6.6%	7.9%	9.4%	11.0%	12.7%	14.7%	16.7%	19.0%	21.3%	23.8%	26.1%	29.1%	31.9%	34.7%
4	1.1%	1.4%	1.8%	2.3%	2.9%	3.6%	4.4%	5.3%	6.4%	7.6%	9.0%	10.5%	12.2%	14.1%	16.0%	18.2%	20.4%	22.5%	25.3%	27.9%	30.6%
5	0.7%	0.9%	1.2%	1.5%	1.9%	2.4%	3.0%	3.7%	4.5%	5.4%	6.5%	7.7%	9.0%	10.5%	12.1%	13.8%	15.7%	17.5%	19.9%	22.2%	24.5%
6	0.4%	0.6%	0.7%	1.0%	1.2%	1.6%	2.0%	2.4%	3.0%	3.7%	4.4%	5.3%	6.3%	7.4%	8.7%	10.1%	11.6%	13.0%	15.0%	16.9%	18.9%
7	0.2%	0.3%	0.4%	0.5%	0.7%	0.9%	1.1%	1.4%	1.7%	2.1%	2.6%	3.2%	3.8%	4.6%	5.4%	6.4%	7.5%	8.5%	9.9%	11.4%	12.9%
8	0.1%	0.1%	0.2%	0.2%	0.3%	0.4%	0.5%	0.6%	0.8%	1.0%	1.3%	1.6%	1.9%	2.4%	2.9%	3.4%	4.1%	4.7%	5.6%	6.5%	7.5%
9	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%	0.3%	0.4%	0.5%	0.6%	0.8%	1.0%	1.2%	1.4%	1.7%	2.1%	2.5%
10	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%	0.3%	0.3%	0.4%	0.5%	0.6%	0.8%	0.9%

300 yds Average Percentage Possibles – Difficult Conditions

Bull Ø												Prop'd		ICFRA				NRA			
Inches	3.84	3.94	4.04	4.13	4.23	4.33	4.43	4.53	4.63	4.72	4.82	4.92	5.02	5.12	5.22	5.31	5.41	5.50	5.61	5.71	5.81
mm	97.50	100.00	102.50	105.00	107.50	110.00	112.50	115.00	117.50	120.00	122.50	125.00	127.50	130.00	132.50	135.00	137.50	139.70	142.50	145.00	147.50
MoA	1.320	1.351	1.383	1.414	1.445	1.477	1.508	1.539	1.571	1.602	1.633	1.665	1.696	1.727	1.759	1.790	1.821	1.849	1.884	1.915	1.947
Skill Level																					
Overall	0.4%	0.6%	0.7%	1.0%	1.2%	1.6%	2.0%	2.5%	3.0%	3.7%	4.5%	5.4%	6.4%	7.5%	8.7%	10.1%	11.6%	13.1%	15.0%	16.9%	18.9%
1	3.6%	4.5%	5.6%	6.9%	8.3%	10.0%	11.8%	13.8%	16.0%	18.4%	21.0%	23.7%	26.5%	29.5%	32.5%	35.6%	38.8%	41.6%	45.2%	48.4%	51.5%
2	1.6%	2.0%	2.6%	3.2%	4.0%	4.9%	6.0%	7.2%	8.6%	10.1%	11.8%	13.7%	15.7%	17.9%	20.2%	22.7%	25.2%	27.6%	30.7%	33.5%	36.4%
3	1.2%	1.5%	2.0%	2.5%	3.1%	3.9%	4.7%	5.8%	6.9%	8.2%	9.7%	11.3%	13.0%	14.9%	17.0%	19.2%	21.5%	23.7%	26.6%	29.2%	32.0%
4	0.3%	0.4%	0.5%	0.7%	0.9%	1.2%	1.5%	1.9%	2.4%	2.9%	3.5%	4.3%	5.1%	6.0%	7.1%	8.3%	9.6%	10.8%	12.5%	14.2%	16.0%
5	0.4%	0.5%	0.6%	0.8%	1.1%	1.4%	1.7%	2.2%	2.7%	3.3%	4.0%	4.8%	5.7%	6.7%	7.9%	9.2%	10.6%	11.9%	13.7%	15.5%	17.4%
6	0.2%	0.3%	0.4%	0.5%	0.6%	0.8%	1.0%	1.3%	1.6%	2.0%	2.5%	3.0%	3.6%	4.4%	5.2%	6.1%	7.1%	8.1%	9.5%	10.9%	12.3%
7	0.0%	0.1%	0.1%	0.1%	0.2%	0.2%	0.3%	0.4%	0.5%	0.6%	0.8%	0.9%	1.2%	1.4%	1.8%	2.1%	2.6%	3.0%	3.6%	4.3%	5.0%
8	0.0%	0.0%	0.1%	0.1%	0.1%	0.2%	0.2%	0.3%	0.4%	0.5%	0.6%	0.7%	0.9%	1.1%	1.4%	1.7%	2.0%	2.4%	2.9%	3.5%	4.1%
9	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%	0.3%	0.4%	0.5%	0.6%	0.7%	0.9%	1.1%	1.4%	1.7%	2.0%	2.4%	2.9%	3.4%
10	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%	0.3%	0.3%	0.4%	0.5%	0.6%	0.8%

500 yds Average Percentage Possibles – All Conditions

Bull Ø									Prop'd							ICFRA		NRA			
Inches	7.87	8.03	8.19	8.35	8.50	8.66	8.86	8.98	9.06	9.29	9.45	9.61	9.76	9.92	10.08	10.24	10.39	10.50	10.63	10.79	10.94
mm	200.00	204.00	208.00	212.00	216.00	220.00	225.00	228.00	230.00	236.00	240.00	244.00	248.00	252.00	256.00	260.00	264.00	266.70	270.00	274.00	278.00
MoA	1.563	1.593	1.623	1.653	1.683	1.713	1.751	1.773	1.788	1.833	1.863	1.893	1.924	1.954	1.984	2.014	2.044	2.064	2.089	2.119	2.149
Skill Level																					
Overall	1.1%	1.4%	1.7%	2.1%	2.5%	3.0%	3.8%	4.3%	4.6%	5.9%	6.8%	7.8%	8.9%	10.2%	11.5%	12.9%	14.5%	15.6%	16.9%	18.7%	20.6%
1	5.8%	6.9%	8.2%	9.5%	11.0%	12.7%	14.9%	16.4%	17.4%	20.6%	22.9%	25.3%	27.7%	30.3%	32.9%	35.6%	38.3%	40.1%	42.4%	45.1%	47.8%
2	2.5%	3.0%	3.6%	4.4%	5.2%	6.1%	7.4%	8.3%	8.9%	10.9%	12.4%	14.0%	15.7%	17.6%	19.5%	21.5%	23.7%	25.1%	27.0%	29.3%	31.7%
3	1.8%	2.2%	2.7%	3.2%	3.9%	4.6%	5.7%	6.4%	6.9%	8.5%	9.8%	11.1%	12.6%	14.2%	15.8%	17.6%	19.5%	20.8%	22.5%	24.6%	26.8%
4	1.2%	1.5%	1.8%	2.2%	2.6%	3.2%	3.9%	4.4%	4.8%	6.1%	7.0%	8.1%	9.2%	10.5%	11.9%	13.3%	14.9%	16.0%	17.4%	19.2%	21.1%
5	0.7%	0.8%	1.0%	1.3%	1.6%	1.9%	2.4%	2.7%	3.0%	3.9%	4.5%	5.3%	6.1%	7.0%	8.0%	9.1%	10.3%	11.1%	12.2%	13.6%	15.1%
6	0.4%	0.5%	0.6%	0.8%	0.9%	1.1%	1.5%	1.7%	1.9%	2.4%	2.9%	3.4%	4.0%	4.6%	5.3%	6.1%	7.0%	7.6%	8.4%	9.5%	10.7%
7	0.3%	0.4%	0.6%	0.7%	0.9%	1.1%	1.3%	1.6%	1.7%	2.2%	2.7%	3.1%	3.7%	4.3%	4.9%	5.7%	6.5%	7.1%	7.9%	8.9%	10.0%
8	0.2%	0.2%	0.3%	0.3%	0.4%	0.5%	0.7%	0.8%	0.8%	1.1%	1.4%	1.6%	1.9%	2.3%	2.7%	3.1%	3.6%	4.0%	4.5%	5.1%	5.9%
9	0.1%	0.1%	0.2%	0.2%	0.3%	0.3%	0.4%	0.5%	0.6%	0.8%	0.9%	1.1%	1.4%	1.6%	1.9%	2.3%	2.6%	2.9%	3.3%	3.8%	4.4%
10	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%	0.3%	0.3%	0.4%	0.5%	0.6%	0.7%	0.9%	1.0%	1.1%	1.4%	1.6%

500 yds Average Percentage Possibles – Easy Conditions

Bull Ø									Prop'd							ICFRA		NRA			
Inches	7.87	8.03	8.19	8.35	8.50	8.66	8.86	8.98	9.06	9.29	9.45	9.61	9.76	9.92	10.08	10.24	10.39	10.50	10.63	10.79	10.94
mm	200.00	204.00	208.00	212.00	216.00	220.00	225.00	228.00	230.00	236.00	240.00	244.00	248.00	252.00	256.00	260.00	264.00	266.70	270.00	274.00	278.00
MoA	1.563	1.593	1.623	1.653	1.683	1.713	1.751	1.773	1.788	1.833	1.863	1.893	1.924	1.954	1.984	2.014	2.044	2.064	2.089	2.119	2.149
Skill Level																					
Overall	2.6%	3.2%	3.8%	4.6%	5.4%	6.4%	7.7%	8.6%	9.3%	11.3%	12.9%	14.5%	16.3%	18.2%	20.2%	22.2%	24.4%	25.9%	27.8%	30.1%	32.5%
1	15.9%	18.2%	20.7%	23.3%	26.0%	28.8%	32.5%	34.7%	36.2%	40.8%	43.9%	47.0%	50.0%	53.0%	56.0%	58.9%	61.7%	63.5%	65.7%	68.2%	70.6%
2	5.5%	6.5%	7.7%	9.0%	10.5%	12.0%	14.2%	15.6%	16.6%	19.7%	21.9%	24.2%	26.7%	29.2%	31.7%	34.3%	37.0%	38.8%	41.1%	43.8%	46.5%
3	5.4%	6.4%	7.5%	8.8%	10.3%	11.8%	14.0%	15.3%	16.3%	19.4%	21.6%	23.9%	26.3%	28.8%	31.3%	33.9%	36.6%	38.4%	40.6%	43.3%	46.0%
4	3.2%	3.9%	4.6%	5.5%	6.5%	7.6%	9.2%	10.2%	10.9%	13.3%	15.0%	16.8%	18.7%	20.8%	22.9%	25.2%	27.5%	29.1%	31.1%	33.6%	36.1%
5	1.6%	2.0%	2.4%	2.9%	3.5%	4.1%	5.1%	5.7%	6.2%	7.7%	8.9%	10.2%	11.5%	13.0%	14.6%	16.3%	18.1%	19.3%	20.9%	22.9%	25.0%
6	0.9%	1.1%	1.4%	1.7%	2.0%	2.5%	3.1%	3.5%	3.8%	4.9%	5.7%	6.5%	7.5%	8.6%	9.8%	11.0%	12.4%	13.4%	14.6%	16.2%	17.9%
7	0.8%	1.1%	1.3%	1.6%	2.0%	2.4%	3.0%	3.4%	3.7%	4.7%	5.5%	6.3%	7.3%	8.3%	9.5%	10.7%	12.1%	13.0%	14.3%	15.8%	17.5%
8	0.4%	0.5%	0.7%	0.9%	1.1%	1.3%	1.6%	1.9%	2.1%	2.7%	3.2%	3.8%	4.4%	5.1%	5.8%	6.7%	7.6%	8.3%	9.2%	10.4%	11.6%
9	0.2%	0.3%	0.3%	0.4%	0.5%	0.7%	0.9%	1.0%	1.1%	1.4%	1.7%	2.1%	2.4%	2.9%	3.4%	3.9%	4.5%	4.9%	5.5%	6.3%	7.2%
10	0.1%	0.1%	0.1%	0.2%	0.2%	0.3%	0.4%	0.4%	0.5%	0.7%	0.8%	1.0%	1.2%	1.4%	1.6%	1.9%	2.3%	2.5%	2.9%	3.3%	3.8%

500 yds Average Percentage Possibles – Average Conditions

Bull Ø									Prop'd							ICFRA		NRA			
Inches	7.87	8.03	8.19	8.35	8.50	8.66	8.86	8.98	9.06	9.29	9.45	9.61	9.76	9.92	10.08	10.24	10.39	10.50	10.63	10.79	10.94
mm	200.00	204.00	208.00	212.00	216.00	220.00	225.00	228.00	230.00	236.00	240.00	244.00	248.00	252.00	256.00	260.00	264.00	266.70	270.00	274.00	278.00
MoA	1.563	1.593	1.623	1.653	1.683	1.713	1.751	1.773	1.788	1.833	1.863	1.893	1.924	1.954	1.984	2.014	2.044	2.064	2.089	2.119	2.149
Skill Level																					
Overall	0.9%	1.1%	1.4%	1.7%	2.1%	2.5%	3.1%	3.5%	3.9%	4.9%	5.7%	6.6%	7.6%	8.7%	9.9%	11.1%	12.5%	13.5%	14.8%	16.4%	18.1%
1	4.7%	5.6%	6.7%	7.9%	9.2%	10.6%	12.6%	13.9%	14.8%	17.6%	19.7%	21.9%	24.2%	26.6%	29.0%	31.5%	34.1%	35.9%	38.1%	40.7%	43.4%
2	2.2%	2.7%	3.3%	3.9%	4.7%	5.5%	6.7%	7.5%	8.1%	10.0%	11.4%	12.9%	14.5%	16.3%	18.1%	20.0%	22.1%	23.5%	25.3%	27.5%	29.8%
3	1.2%	1.5%	1.9%	2.3%	2.8%	3.3%	4.2%	4.7%	5.1%	6.4%	7.4%	8.5%	9.7%	11.0%	12.4%	13.9%	15.5%	16.7%	18.1%	20.0%	21.9%
4	0.7%	0.9%	1.1%	1.4%	1.7%	2.1%	2.6%	3.0%	3.3%	4.2%	4.9%	5.7%	6.6%	7.5%	8.6%	9.7%	11.0%	11.9%	13.0%	14.5%	16.1%
5	0.5%	0.7%	0.8%	1.1%	1.3%	1.6%	2.0%	2.3%	2.5%	3.2%	3.8%	4.5%	5.2%	6.0%	6.9%	7.8%	8.9%	9.7%	10.6%	11.9%	13.3%
6	0.3%	0.3%	0.4%	0.5%	0.7%	0.8%	1.0%	1.2%	1.3%	1.8%	2.1%	2.5%	2.9%	3.4%	4.0%	4.6%	5.3%	5.8%	6.5%	7.4%	8.3%
7	0.2%	0.3%	0.4%	0.5%	0.6%	0.8%	1.0%	1.1%	1.3%	1.7%	2.0%	2.3%	2.8%	3.2%	3.8%	4.4%	5.0%	5.5%	6.2%	7.0%	7.9%
8	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%	0.3%	0.3%	0.4%	0.5%	0.6%	0.8%	0.9%	1.1%	1.3%	1.6%	1.9%	2.1%	2.4%	2.7%	3.2%
9	0.1%	0.1%	0.1%	0.2%	0.2%	0.3%	0.4%	0.4%	0.5%	0.7%	0.8%	1.0%	1.2%	1.4%	1.6%	1.9%	2.3%	2.5%	2.9%	3.3%	3.8%
10	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

500 yds Average Percentage Possibles – Difficult Conditions

Bull Ø									Prop'd							ICFRA		NRA			
Inches	7.87	8.03	8.19	8.35	8.50	8.66	8.86	8.98	9.06	9.29	9.45	9.61	9.76	9.92	10.08	10.24	10.39	10.50	10.63	10.79	10.94
mm	200.00	204.00	208.00	212.00	216.00	220.00	225.00	228.00	230.00	236.00	240.00	244.00	248.00	252.00	256.00	260.00	264.00	266.70	270.00	274.00	278.00
MoA	1.563	1.593	1.623	1.653	1.683	1.713	1.751	1.773	1.788	1.833	1.863	1.893	1.924	1.954	1.984	2.014	2.044	2.064	2.089	2.119	2.149
Skill Level																					
Overall	0.4%	0.5%	0.6%	0.8%	1.0%	1.2%	1.5%	1.8%	2.0%	2.6%	3.0%	3.5%	4.1%	4.8%	5.6%	6.4%	7.3%	7.9%	8.8%	9.9%	11.1%
1	1.9%	2.4%	2.9%	3.5%	4.2%	4.9%	6.1%	6.8%	7.3%	9.1%	10.4%	11.8%	13.3%	14.9%	16.7%	18.5%	20.5%	21.8%	23.5%	25.7%	27.9%
2	0.8%	1.0%	1.2%	1.5%	1.8%	2.2%	2.7%	3.1%	3.4%	4.4%	5.1%	5.9%	6.8%	7.8%	8.9%	10.1%	11.4%	12.3%	13.5%	15.0%	16.6%
3	0.5%	0.6%	0.8%	1.0%	1.2%	1.4%	1.8%	2.1%	2.3%	3.0%	3.5%	4.1%	4.8%	5.5%	6.4%	7.3%	8.3%	9.0%	9.9%	11.2%	12.5%
4	0.6%	0.8%	1.0%	1.2%	1.5%	1.8%	2.3%	2.6%	2.9%	3.7%	4.3%	5.0%	5.8%	6.7%	7.7%	8.7%	9.9%	10.7%	11.8%	13.1%	14.6%
5	0.1%	0.1%	0.1%	0.2%	0.2%	0.3%	0.4%	0.4%	0.5%	0.7%	0.8%	1.0%	1.2%	1.4%	1.6%	1.9%	2.3%	2.5%	2.9%	3.3%	3.8%
6	0.2%	0.3%	0.3%	0.4%	0.5%	0.7%	0.9%	1.0%	1.1%	1.4%	1.7%	2.1%	2.4%	2.9%	3.4%	3.9%	4.5%	4.9%	5.5%	6.3%	7.2%
7	0.1%	0.1%	0.1%	0.2%	0.2%	0.3%	0.4%	0.4%	0.5%	0.7%	0.8%	1.0%	1.2%	1.4%	1.6%	1.9%	2.3%	2.5%	2.9%	3.3%	3.8%
8	0.2%	0.2%	0.3%	0.3%	0.4%	0.5%	0.7%	0.8%	0.8%	1.1%	1.4%	1.6%	1.9%	2.3%	2.7%	3.1%	3.6%	4.0%	4.5%	5.1%	5.9%
9	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
10	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

600 yds Average Percentage Possibles – All Conditions

Bull Ø										ICFRA Prop'd								NRA			
Inches	9.65	9.84	10.04	10.24	10.43	10.63	10.83	11.02	11.22	11.42	11.61	11.81	12.01	12.20	12.40	12.60	12.80	13.00	13.19	13.39	13.58
mm	245.00	250.00	255.00	260.00	265.00	270.00	275.00	280.00	285.00	290.00	295.00	300.00	305.00	310.00	315.00	320.00	325.00	330.20	335.00	340.00	345.00
MoA	1.584	1.616	1.647	1.678	1.709	1.741	1.772	1.803	1.835	1.866	1.897	1.929	1.960	1.991	2.023	2.054	2.085	2.118	2.148	2.179	2.211
Skill Level																					
Overall	0.6%	0.7%	0.9%	1.1%	1.4%	1.7%	2.0%	2.4%	2.9%	3.5%	4.1%	4.8%	5.6%	6.4%	7.4%	8.4%	9.6%	10.9%	12.1%	13.6%	15.1%
1	3.3%	4.0%	4.8%	5.7%	6.7%	7.9%	9.2%	10.6%	12.2%	13.8%	15.6%	17.6%	19.6%	21.8%	24.0%	26.4%	28.8%	31.4%	33.8%	36.4%	39.1%
2	1.5%	1.8%	2.2%	2.7%	3.3%	4.0%	4.7%	5.6%	6.5%	7.5%	8.7%	10.0%	11.4%	12.9%	14.5%	16.2%	18.0%	20.0%	21.9%	24.0%	26.2%
3	1.3%	1.6%	2.0%	2.4%	3.0%	3.6%	4.2%	5.0%	5.9%	6.9%	7.9%	9.1%	10.4%	11.8%	13.3%	15.0%	16.7%	18.6%	20.4%	22.5%	24.6%
4	0.8%	1.1%	1.3%	1.6%	2.0%	2.4%	2.9%	3.5%	4.2%	4.9%	5.7%	6.6%	7.7%	8.8%	10.0%	11.3%	12.7%	14.3%	15.9%	17.6%	19.4%
5	0.4%	0.5%	0.7%	0.8%	1.0%	1.3%	1.6%	1.9%	2.3%	2.7%	3.2%	3.8%	4.5%	5.2%	6.0%	6.9%	7.9%	9.0%	10.1%	11.4%	12.7%
6	0.3%	0.4%	0.5%	0.6%	0.8%	1.0%	1.2%	1.5%	1.8%	2.1%	2.5%	3.0%	3.5%	4.1%	4.8%	5.5%	6.4%	7.3%	8.2%	9.3%	10.5%
7	0.2%	0.3%	0.3%	0.4%	0.5%	0.7%	0.8%	1.0%	1.2%	1.5%	1.8%	2.1%	2.5%	3.0%	3.5%	4.0%	4.7%	5.4%	6.1%	7.0%	7.9%
8	0.1%	0.1%	0.2%	0.2%	0.3%	0.3%	0.4%	0.5%	0.6%	0.8%	0.9%	1.1%	1.3%	1.6%	1.9%	2.3%	2.6%	3.1%	3.6%	4.1%	4.7%
9	0.1%	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%	0.3%	0.4%	0.5%	0.6%	0.7%	0.8%	1.0%	1.2%	1.4%	1.7%	2.0%	2.3%	2.7%	3.1%
10	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%	0.2%	0.3%	0.3%

600 yds Average Percentage Possibles – Easy Conditions

Bull Ø										ICFRA Prop'd								NRA			
Inches	9.65	9.84	10.04	10.24	10.43	10.63	10.83	11.02	11.22	11.42	11.61	11.81	12.01	12.20	12.40	12.60	12.80	13.00	13.19	13.39	13.58
mm	245.00	250.00	255.00	260.00	265.00	270.00	275.00	280.00	285.00	290.00	295.00	300.00	305.00	310.00	315.00	320.00	325.00	330.20	335.00	340.00	345.00
MoA	1.584	1.616	1.647	1.678	1.709	1.741	1.772	1.803	1.835	1.866	1.897	1.929	1.960	1.991	2.023	2.054	2.085	2.118	2.148	2.179	2.211
Skill Level																					
Overall	1.0%	1.3%	1.6%	1.9%	2.3%	2.8%	3.4%	4.0%	4.8%	5.6%	6.5%	7.5%	8.7%	9.9%	11.2%	12.7%	14.2%	15.9%	17.6%	19.4%	21.3%
1	7.7%	9.1%	10.7%	12.4%	14.3%	16.3%	18.5%	20.8%	23.2%	25.7%	28.4%	31.1%	33.9%	36.7%	39.6%	42.5%	45.4%	48.4%	51.1%	53.9%	56.7%
2	2.7%	3.3%	4.0%	4.8%	5.7%	6.7%	7.9%	9.1%	10.5%	12.1%	13.7%	15.5%	17.3%	19.3%	21.4%	23.6%	25.9%	28.4%	30.7%	33.2%	35.8%
3	2.4%	3.0%	3.6%	4.3%	5.1%	6.1%	7.1%	8.3%	9.6%	11.0%	12.6%	14.2%	16.0%	17.9%	19.9%	22.0%	24.2%	26.6%	28.9%	31.3%	33.8%
4	1.7%	2.1%	2.5%	3.1%	3.7%	4.4%	5.3%	6.2%	7.2%	8.4%	9.6%	11.0%	12.5%	14.1%	15.8%	17.6%	19.5%	21.6%	23.6%	25.8%	28.1%
5	0.5%	0.7%	0.9%	1.1%	1.3%	1.6%	2.0%	2.4%	2.8%	3.4%	4.0%	4.6%	5.4%	6.3%	7.2%	8.2%	9.3%	10.6%	11.9%	13.3%	14.8%
6	0.7%	0.9%	1.1%	1.4%	1.7%	2.0%	2.5%	3.0%	3.5%	4.2%	4.9%	5.7%	6.6%	7.6%	8.7%	9.9%	11.2%	12.6%	14.0%	15.6%	17.3%
7	0.3%	0.4%	0.5%	0.6%	0.8%	1.0%	1.2%	1.5%	1.8%	2.2%	2.6%	3.0%	3.6%	4.2%	4.9%	5.6%	6.4%	7.4%	8.4%	9.4%	10.6%
8	0.2%	0.2%	0.3%	0.3%	0.4%	0.5%	0.6%	0.8%	1.0%	1.2%	1.4%	1.7%	2.0%	2.4%	2.8%	3.3%	3.9%	4.5%	5.1%	5.9%	6.7%
9	0.0%	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%	0.3%	0.3%	0.4%	0.5%	0.6%	0.8%	0.9%	1.1%	1.4%	1.6%	1.9%	2.2%	2.6%	3.0%
10	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

600 yds Average Percentage Possibles – Average Conditions

Bull Ø										ICFRA Prop'd								NRA			
Inches	9.65	9.84	10.04	10.24	10.43	10.63	10.83	11.02	11.22	11.42	11.61	11.81	12.01	12.20	12.40	12.60	12.80	13.00	13.19	13.39	13.58
mm	245.00	250.00	255.00	260.00	265.00	270.00	275.00	280.00	285.00	290.00	295.00	300.00	305.00	310.00	315.00	320.00	325.00	330.20	335.00	340.00	345.00
MoA	1.584	1.616	1.647	1.678	1.709	1.741	1.772	1.803	1.835	1.866	1.897	1.929	1.960	1.991	2.023	2.054	2.085	2.118	2.148	2.179	2.211
Skill Level																					
Overall	0.6%	0.7%	0.9%	1.1%	1.4%	1.7%	2.0%	2.5%	2.9%	3.5%	4.1%	4.8%	5.6%	6.5%	7.4%	8.5%	9.6%	10.9%	12.2%	13.6%	15.2%
1	3.0%	3.6%	4.4%	5.3%	6.2%	7.3%	8.6%	9.9%	11.4%	13.0%	14.7%	16.6%	18.6%	20.6%	22.8%	25.1%	27.5%	30.0%	32.4%	34.9%	37.5%
2	1.4%	1.7%	2.1%	2.6%	3.2%	3.8%	4.5%	5.3%	6.2%	7.3%	8.4%	9.6%	11.0%	12.4%	14.0%	15.7%	17.4%	19.4%	21.3%	23.4%	25.5%
3	1.5%	1.9%	2.4%	2.9%	3.5%	4.1%	4.9%	5.8%	6.8%	7.8%	9.0%	10.4%	11.8%	13.3%	15.0%	16.7%	18.6%	20.6%	22.6%	24.7%	26.9%
4	0.9%	1.1%	1.4%	1.7%	2.1%	2.5%	3.0%	3.6%	4.3%	5.0%	5.9%	6.8%	7.8%	9.0%	10.2%	11.6%	13.0%	14.6%	16.2%	17.9%	19.7%
5	0.5%	0.6%	0.7%	0.9%	1.2%	1.4%	1.7%	2.1%	2.5%	3.0%	3.6%	4.2%	4.9%	5.7%	6.5%	7.5%	8.5%	9.7%	10.9%	12.2%	13.6%
6	0.3%	0.3%	0.4%	0.5%	0.7%	0.8%	1.0%	1.3%	1.5%	1.8%	2.2%	2.6%	3.1%	3.6%	4.2%	4.9%	5.6%	6.5%	7.4%	8.4%	9.4%
7	0.2%	0.3%	0.4%	0.4%	0.6%	0.7%	0.9%	1.1%	1.3%	1.6%	1.9%	2.2%	2.7%	3.1%	3.7%	4.3%	4.9%	5.7%	6.5%	7.4%	8.3%
8	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%	0.3%	0.3%	0.4%	0.5%	0.7%	0.8%	1.0%	1.2%	1.4%	1.7%	1.9%	2.3%	2.7%	3.1%	3.6%
9	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%	0.3%	0.3%	0.4%	0.5%	0.7%	0.8%	1.0%	1.2%	1.4%	1.7%	1.9%	2.3%	2.7%	3.1%	3.6%
10	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%	0.2%	0.3%	0.4%	0.4%	0.5%

600 yds Average Percentage Possibles – Difficult Conditions

Bull Ø										ICFRA Prop'd								NRA			
Inches	9.65	9.84	10.04	10.24	10.43	10.63	10.83	11.02	11.22	11.42	11.61	11.81	12.01	12.20	12.40	12.60	12.80	13.00	13.19	13.39	13.58
mm	245.00	250.00	255.00	260.00	265.00	270.00	275.00	280.00	285.00	290.00	295.00	300.00	305.00	310.00	315.00	320.00	325.00	330.20	335.00	340.00	345.00
MoA	1.584	1.616	1.647	1.678	1.709	1.741	1.772	1.803	1.835	1.866	1.897	1.929	1.960	1.991	2.023	2.054	2.085	2.118	2.148	2.179	2.211
Skill Level																					
Overall	0.2%	0.3%	0.4%	0.5%	0.6%	0.7%	0.9%	1.1%	1.3%	1.6%	1.9%	2.3%	2.7%	3.2%	3.8%	4.4%	5.1%	5.8%	6.6%	7.5%	8.5%
1	1.2%	1.5%	1.9%	2.3%	2.8%	3.4%	4.0%	4.8%	5.6%	6.5%	7.6%	8.7%	10.0%	11.3%	12.8%	14.4%	16.0%	17.9%	19.7%	21.7%	23.7%
2	0.7%	0.9%	1.2%	1.4%	1.8%	2.2%	2.6%	3.1%	3.7%	4.4%	5.1%	6.0%	6.9%	7.9%	9.1%	10.3%	11.6%	13.1%	14.6%	16.2%	17.9%
3	0.2%	0.3%	0.4%	0.5%	0.6%	0.7%	0.9%	1.1%	1.3%	1.6%	1.9%	2.3%	2.7%	3.2%	3.7%	4.3%	5.0%	5.8%	6.6%	7.5%	8.5%
4	0.3%	0.3%	0.4%	0.5%	0.7%	0.8%	1.0%	1.3%	1.5%	1.8%	2.2%	2.6%	3.1%	3.6%	4.2%	4.9%	5.6%	6.5%	7.4%	8.4%	9.4%
5	0.2%	0.3%	0.3%	0.4%	0.5%	0.7%	0.8%	1.0%	1.3%	1.5%	1.8%	2.2%	2.6%	3.1%	3.6%	4.2%	4.8%	5.6%	6.4%	7.2%	8.2%
6	0.1%	0.2%	0.2%	0.3%	0.4%	0.4%	0.6%	0.7%	0.8%	1.0%	1.2%	1.5%	1.8%	2.1%	2.5%	2.9%	3.4%	4.0%	4.6%	5.3%	6.0%
7	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%	0.3%	0.3%	0.4%	0.5%	0.7%	0.8%	1.0%	1.2%	1.4%	1.7%	1.9%	2.3%	2.7%	3.1%	3.6%
8	0.1%	0.1%	0.2%	0.2%	0.3%	0.4%	0.5%	0.6%	0.7%	0.9%	1.1%	1.3%	1.6%	1.9%	2.2%	2.6%	3.1%	3.6%	4.1%	4.8%	5.4%
9	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%	0.3%	0.3%	0.4%	0.5%	0.6%	0.7%	0.8%	1.0%	1.2%	1.4%	1.6%
10	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

900 yds Average Percentage Possibles – All Conditions

Bull Ø					ICFRA										Consid-ered			NRA Prop'd			
Inches	18.66	18.98	19.29	19.61	20.08	20.24	20.55	20.87	21.18	21.50	21.81	22.00	22.44	22.76	23.00	23.39	23.70	24.00	24.33	24.65	24.96
mm	474.00	482.00	490.00	498.00	510.00	514.00	522.00	530.00	538.00	546.00	554.00	558.80	570.00	578.00	584.20	594.00	602.00	609.60	618.00	626.00	634.00
MoA	2.013	2.046	2.080	2.113	2.163	2.180	2.213	2.247	2.280	2.313	2.347	2.367	2.414	2.447	2.473	2.514	2.547	2.579	2.614	2.648	2.681
Skill Level																					
Overall	0.6%	0.7%	0.8%	1.0%	1.3%	1.4%	1.7%	2.0%	2.4%	2.8%	3.2%	3.5%	4.2%	4.8%	5.3%	6.2%	7.0%	7.8%	8.7%	9.7%	10.7%
1	2.9%	3.4%	4.0%	4.7%	5.6%	6.3%	7.2%	8.2%	9.3%	10.5%	11.7%	12.5%	14.5%	16.1%	17.3%	19.4%	21.2%	22.9%	24.9%	26.9%	28.9%
2	1.4%	1.7%	2.0%	2.4%	2.9%	3.3%	3.9%	4.5%	5.1%	5.9%	6.7%	7.2%	8.6%	9.6%	10.5%	11.9%	13.2%	14.5%	16.0%	17.5%	19.1%
3	1.0%	1.2%	1.4%	1.7%	2.1%	2.4%	2.8%	3.3%	3.8%	4.4%	5.0%	5.4%	6.5%	7.4%	8.1%	9.3%	10.3%	11.4%	12.7%	14.0%	15.3%
4	0.7%	0.9%	1.1%	1.3%	1.6%	1.8%	2.1%	2.5%	2.9%	3.4%	3.9%	4.2%	5.1%	5.8%	6.4%	7.4%	8.3%	9.2%	10.3%	11.4%	12.6%
5	0.5%	0.6%	0.7%	0.8%	1.0%	1.2%	1.4%	1.7%	1.9%	2.3%	2.6%	2.9%	3.5%	4.0%	4.5%	5.2%	5.9%	6.6%	7.4%	8.3%	9.2%
6	0.3%	0.4%	0.5%	0.6%	0.7%	0.8%	1.0%	1.1%	1.4%	1.6%	1.9%	2.1%	2.5%	2.9%	3.2%	3.8%	4.4%	4.9%	5.6%	6.2%	7.0%
7	0.2%	0.3%	0.3%	0.4%	0.5%	0.6%	0.7%	0.8%	1.0%	1.2%	1.4%	1.5%	1.9%	2.2%	2.5%	2.9%	3.4%	3.8%	4.3%	4.9%	5.5%
8	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%	0.3%	0.3%	0.4%	0.5%	0.6%	0.6%	0.8%	0.9%	1.1%	1.3%	1.5%	1.7%	2.0%	2.3%	2.6%
9	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%	0.2%	0.3%	0.3%	0.4%	0.5%	0.5%	0.7%	0.8%	0.9%	1.1%	1.3%	1.5%	1.7%	2.0%	2.3%
10	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%	0.2%	0.3%	0.3%	0.4%	0.5%	0.6%	0.6%

900 yds Average Percentage Possibles – Easy Conditions

Bull Ø					ICFRA										Consid-ered			NRA Prop'd			
Inches	18.66	18.98	19.29	19.61	20.08	20.24	20.55	20.87	21.18	21.50	21.81	22.00	22.44	22.76	23.00	23.39	23.70	24.00	24.33	24.65	24.96
mm	474.00	482.00	490.00	498.00	510.00	514.00	522.00	530.00	538.00	546.00	554.00	558.80	570.00	578.00	584.20	594.00	602.00	609.60	618.00	626.00	634.00
MoA	2.013	2.046	2.080	2.113	2.163	2.180	2.213	2.247	2.280	2.313	2.347	2.367	2.414	2.447	2.473	2.514	2.547	2.579	2.614	2.648	2.681
Skill Level																					
Overall	1.5%	1.8%	2.1%	2.5%	3.1%	3.5%	4.0%	4.7%	5.4%	6.1%	7.0%	7.5%	8.9%	10.0%	10.9%	12.4%	13.7%	15.0%	16.5%	18.1%	19.7%
1	7.9%	9.1%	10.4%	11.8%	13.7%	14.9%	16.6%	18.5%	20.4%	22.4%	24.5%	25.8%	28.9%	31.2%	33.1%	36.0%	38.4%	40.7%	43.3%	45.7%	48.1%
2	3.5%	4.1%	4.8%	5.5%	6.6%	7.3%	8.4%	9.5%	10.7%	12.0%	13.4%	14.3%	16.5%	18.2%	19.5%	21.7%	23.6%	25.5%	27.6%	29.7%	31.8%
3	3.8%	4.5%	5.2%	6.0%	7.2%	8.0%	9.1%	10.3%	11.6%	12.9%	14.4%	15.4%	17.6%	19.4%	20.8%	23.1%	25.1%	27.0%	29.2%	31.3%	33.5%
4	1.9%	2.3%	2.7%	3.2%	3.9%	4.4%	5.0%	5.8%	6.6%	7.5%	8.5%	9.2%	10.8%	12.0%	13.0%	14.7%	16.2%	17.7%	19.4%	21.1%	22.9%
5	1.1%	1.3%	1.5%	1.8%	2.2%	2.5%	3.0%	3.5%	4.0%	4.6%	5.3%	5.7%	6.8%	7.7%	8.4%	9.7%	10.8%	11.9%	13.2%	14.5%	15.9%
6	0.7%	0.9%	1.0%	1.3%	1.6%	1.8%	2.1%	2.5%	2.9%	3.3%	3.8%	4.2%	5.0%	5.7%	6.3%	7.3%	8.2%	9.1%	10.2%	11.3%	12.4%
7	0.7%	0.8%	1.0%	1.2%	1.5%	1.7%	2.0%	2.3%	2.7%	3.1%	3.6%	3.9%	4.7%	5.4%	5.9%	6.9%	7.7%	8.6%	9.6%	10.7%	11.8%
8	0.2%	0.2%	0.3%	0.4%	0.5%	0.5%	0.7%	0.8%	0.9%	1.1%	1.3%	1.4%	1.8%	2.1%	2.3%	2.8%	3.2%	3.6%	4.1%	4.6%	5.2%
9	0.4%	0.5%	0.6%	0.7%	0.9%	1.0%	1.2%	1.4%	1.6%	1.9%	2.2%	2.4%	3.0%	3.4%	3.8%	4.5%	5.1%	5.7%	6.4%	7.2%	8.1%
10	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%	0.2%	0.3%	0.3%	0.4%	0.5%	0.6%	0.6%

900 yds Average Percentage Possibles – Average Conditions

Bull Ø					ICFRA										Consid-ered			NRA Prop'd			
Inches	18.66	18.98	19.29	19.61	20.08	20.24	20.55	20.87	21.18	21.50	21.81	22.00	22.44	22.76	23.00	23.39	23.70	24.00	24.33	24.65	24.96
mm	474.00	482.00	490.00	498.00	510.00	514.00	522.00	530.00	538.00	546.00	554.00	558.80	570.00	578.00	584.20	594.00	602.00	609.60	618.00	626.00	634.00
MoA	2.013	2.046	2.080	2.113	2.163	2.180	2.213	2.247	2.280	2.313	2.347	2.367	2.414	2.447	2.473	2.514	2.547	2.579	2.614	2.648	2.681
Skill Level																					
Overall	0.5%	0.6%	0.8%	0.9%	1.2%	1.4%	1.6%	1.9%	2.2%	2.6%	3.0%	3.3%	4.0%	4.5%	5.0%	5.8%	6.6%	7.3%	8.3%	9.2%	10.2%
1	2.7%	3.2%	3.8%	4.4%	5.3%	5.9%	6.8%	7.7%	8.8%	9.9%	11.1%	11.9%	13.8%	15.3%	16.5%	18.5%	20.2%	21.9%	23.9%	25.8%	27.8%
2	1.3%	1.5%	1.8%	2.2%	2.6%	3.0%	3.5%	4.0%	4.7%	5.3%	6.1%	6.6%	7.8%	8.8%	9.6%	11.0%	12.2%	13.4%	14.8%	16.3%	17.8%
3	0.8%	1.0%	1.2%	1.5%	1.8%	2.0%	2.4%	2.8%	3.3%	3.8%	4.4%	4.7%	5.7%	6.4%	7.1%	8.2%	9.1%	10.1%	11.3%	12.4%	13.7%
4	0.8%	0.9%	1.1%	1.3%	1.7%	1.9%	2.2%	2.6%	3.0%	3.5%	4.0%	4.4%	5.3%	6.0%	6.6%	7.6%	8.6%	9.5%	10.6%	11.7%	12.9%
5	0.4%	0.5%	0.6%	0.8%	1.0%	1.1%	1.3%	1.6%	1.9%	2.2%	2.5%	2.8%	3.4%	3.9%	4.3%	5.1%	5.7%	6.4%	7.2%	8.1%	9.0%
6	0.3%	0.4%	0.5%	0.6%	0.7%	0.8%	1.0%	1.1%	1.4%	1.6%	1.9%	2.1%	2.5%	2.9%	3.2%	3.8%	4.4%	4.9%	5.6%	6.2%	7.0%
7	0.2%	0.3%	0.3%	0.4%	0.5%	0.6%	0.7%	0.8%	1.0%	1.2%	1.4%	1.5%	1.9%	2.2%	2.5%	2.9%	3.4%	3.8%	4.3%	4.9%	5.5%
8	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%	0.3%	0.3%	0.4%	0.5%	0.6%	0.6%	0.8%	0.9%	1.1%	1.3%	1.5%	1.7%	2.0%	2.3%	2.6%
9	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%	0.2%	0.3%	0.3%	0.4%	0.5%	0.5%	0.7%	0.8%	0.9%	1.1%	1.2%	1.4%
10	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%	0.2%	0.3%	0.3%	0.4%	0.5%	0.6%	0.6%

900 yds Average Percentage Possibles – Difficult Conditions

Bull Ø					ICFRA										Consid-ered			NRA Prop'd			
Inches	18.66	18.98	19.29	19.61	20.08	20.24	20.55	20.87	21.18	21.50	21.81	22.00	22.44	22.76	23.00	23.39	23.70	24.00	24.33	24.65	24.96
mm	474.00	482.00	490.00	498.00	510.00	514.00	522.00	530.00	538.00	546.00	554.00	558.80	570.00	578.00	584.20	594.00	602.00	609.60	618.00	626.00	634.00
MoA	2.013	2.046	2.080	2.113	2.163	2.180	2.213	2.247	2.280	2.313	2.347	2.367	2.414	2.447	2.473	2.514	2.547	2.579	2.614	2.648	2.681
Skill Level																					
Overall	0.2%	0.3%	0.4%	0.5%	0.6%	0.7%	0.8%	1.0%	1.1%	1.3%	1.6%	1.7%	2.1%	2.5%	2.8%	3.3%	3.7%	4.2%	4.8%	5.4%	6.1%
1	1.5%	1.8%	2.2%	2.5%	3.1%	3.5%	4.1%	4.7%	5.4%	6.2%	7.0%	7.6%	9.0%	10.0%	10.9%	12.5%	13.8%	15.1%	16.6%	18.2%	19.8%
2	0.8%	1.0%	1.2%	1.5%	1.8%	2.0%	2.4%	2.8%	3.3%	3.8%	4.4%	4.7%	5.7%	6.4%	7.1%	8.2%	9.1%	10.1%	11.3%	12.4%	13.7%
3	0.3%	0.4%	0.5%	0.6%	0.7%	0.8%	1.0%	1.1%	1.4%	1.6%	1.9%	2.1%	2.5%	2.9%	3.2%	3.8%	4.4%	4.9%	5.6%	6.2%	7.0%
4	0.1%	0.2%	0.2%	0.3%	0.3%	0.4%	0.5%	0.6%	0.7%	0.8%	1.0%	1.0%	1.3%	1.5%	1.7%	2.1%	2.4%	2.7%	3.1%	3.5%	4.0%
5	0.2%	0.3%	0.4%	0.4%	0.6%	0.6%	0.8%	0.9%	1.1%	1.3%	1.5%	1.7%	2.1%	2.4%	2.7%	3.2%	3.6%	4.1%	4.7%	5.3%	5.9%
6	0.1%	0.1%	0.1%	0.2%	0.2%	0.3%	0.3%	0.4%	0.5%	0.6%	0.7%	0.8%	0.9%	1.1%	1.3%	1.5%	1.7%	2.0%	2.3%	2.6%	3.0%
7	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%	0.2%	0.3%	0.4%	0.4%	0.5%	0.6%	0.7%	0.8%	0.9%	1.1%	1.3%
8	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%	0.2%	0.3%	0.4%	0.4%	0.5%	0.6%	0.7%	0.8%	0.9%	1.1%	1.3%
9	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%	0.3%	0.3%	0.4%	0.4%	0.5%	0.6%	0.7%	0.8%
10	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%	0.3%	0.3%	0.4%	0.4%	0.5%

1000 yds Average Percentage Possibles – All Conditions

Bull Ø					ICFRA										Consid-ered			NRA Prop'd			
Inches	18.66	18.98	19.29	19.61	20.08	20.24	20.55	20.87	21.18	21.50	21.81	22.00	22.44	22.76	23.00	23.39	23.70	24.00	24.33	24.65	24.96
mm	474.00	482.00	490.00	498.00	510.00	514.00	522.00	530.00	538.00	546.00	554.00	558.80	570.00	578.00	584.20	594.00	602.00	609.60	618.00	626.00	634.00
MoA	1.811	1.842	1.872	1.902	1.947	1.962	1.992	2.022	2.052	2.082	2.112	2.130	2.172	2.202	2.226	2.263	2.293	2.321	2.353	2.383	2.413
Skill Level																					
Overall	0.1%	0.1%	0.1%	0.2%	0.2%	0.3%	0.3%	0.4%	0.4%	0.5%	0.6%	0.7%	0.9%	1.1%	1.2%	1.4%	1.7%	1.9%	2.2%	2.5%	2.9%
1	0.5%	0.6%	0.7%	0.9%	1.1%	1.2%	1.5%	1.7%	2.1%	2.4%	2.8%	3.0%	3.7%	4.2%	4.7%	5.5%	6.2%	6.9%	7.8%	8.7%	9.6%
2	0.3%	0.3%	0.4%	0.5%	0.6%	0.7%	0.8%	1.0%	1.2%	1.4%	1.6%	1.8%	2.2%	2.5%	2.8%	3.3%	3.8%	4.3%	4.9%	5.5%	6.2%
3	0.1%	0.1%	0.2%	0.2%	0.3%	0.3%	0.4%	0.5%	0.6%	0.7%	0.8%	0.9%	1.2%	1.4%	1.5%	1.8%	2.1%	2.4%	2.8%	3.1%	3.6%
4	0.1%	0.1%	0.2%	0.2%	0.3%	0.3%	0.4%	0.5%	0.6%	0.7%	0.8%	0.9%	1.1%	1.3%	1.5%	1.7%	2.0%	2.3%	2.7%	3.0%	3.4%
5	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%	0.3%	0.3%	0.4%	0.4%	0.5%	0.6%	0.7%	0.9%	1.0%	1.2%	1.4%	1.6%	1.9%
6	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%	0.3%	0.3%	0.4%	0.4%	0.5%	0.6%	0.7%	0.8%	1.0%
7	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%	0.3%	0.3%	0.4%	0.4%	0.5%
8	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%	0.3%	0.3%	0.4%	0.4%	0.5%	0.6%	0.7%	0.8%	1.0%
9	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
10	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%

1000 yds Average Percentage Possibles – Easy Conditions

Bull Ø					ICFRA										Consid-ered			NRA Prop'd			
Inches	18.66	18.98	19.29	19.61	20.08	20.24	20.55	20.87	21.18	21.50	21.81	22.00	22.44	22.76	23.00	23.39	23.70	24.00	24.33	24.65	24.96
mm	474.00	482.00	490.00	498.00	510.00	514.00	522.00	530.00	538.00	546.00	554.00	558.80	570.00	578.00	584.20	594.00	602.00	609.60	618.00	626.00	634.00
MoA	1.811	1.842	1.872	1.902	1.947	1.962	1.992	2.022	2.052	2.082	2.112	2.130	2.172	2.202	2.226	2.263	2.293	2.321	2.353	2.383	2.413
Skill Level																					
Overall	0.3%	0.3%	0.4%	0.5%	0.6%	0.7%	0.9%	1.0%	1.2%	1.4%	1.7%	1.8%	2.3%	2.6%	2.9%	3.4%	3.9%	4.4%	5.0%	5.7%	6.4%
1	1.2%	1.4%	1.7%	2.1%	2.5%	2.9%	3.3%	3.9%	4.5%	5.1%	5.9%	6.3%	7.6%	8.5%	9.3%	10.6%	11.8%	13.0%	14.4%	15.8%	17.3%
2	0.9%	1.0%	1.3%	1.5%	1.9%	2.1%	2.5%	2.9%	3.4%	3.9%	4.5%	4.9%	5.9%	6.6%	7.3%	8.4%	9.4%	10.4%	11.6%	12.8%	14.1%
3	0.5%	0.6%	0.7%	0.9%	1.1%	1.2%	1.5%	1.7%	2.1%	2.4%	2.8%	3.0%	3.7%	4.2%	4.7%	5.5%	6.2%	6.9%	7.8%	8.7%	9.6%
4	0.4%	0.5%	0.6%	0.8%	0.9%	1.1%	1.3%	1.5%	1.8%	2.1%	2.5%	2.7%	3.3%	3.8%	4.2%	4.9%	5.5%	6.2%	7.0%	7.8%	8.7%
5	0.2%	0.2%	0.3%	0.3%	0.4%	0.5%	0.6%	0.7%	0.8%	0.9%	1.1%	1.2%	1.5%	1.8%	2.0%	2.4%	2.7%	3.1%	3.6%	4.0%	4.5%
6	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%	0.2%	0.3%	0.3%	0.4%	0.5%	0.5%	0.7%	0.8%	0.9%	1.1%	1.2%	1.4%
7	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%	0.2%	0.3%	0.3%	0.4%	0.5%	0.5%	0.7%	0.8%	0.9%	1.1%	1.2%	1.4%
8	0.1%	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%	0.3%	0.3%	0.4%	0.5%	0.5%	0.6%	0.8%	0.9%	1.0%	1.2%	1.4%	1.6%	1.9%	2.1%
9	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
10	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%

1000 yds Average Percentage Possibles – Average Conditions

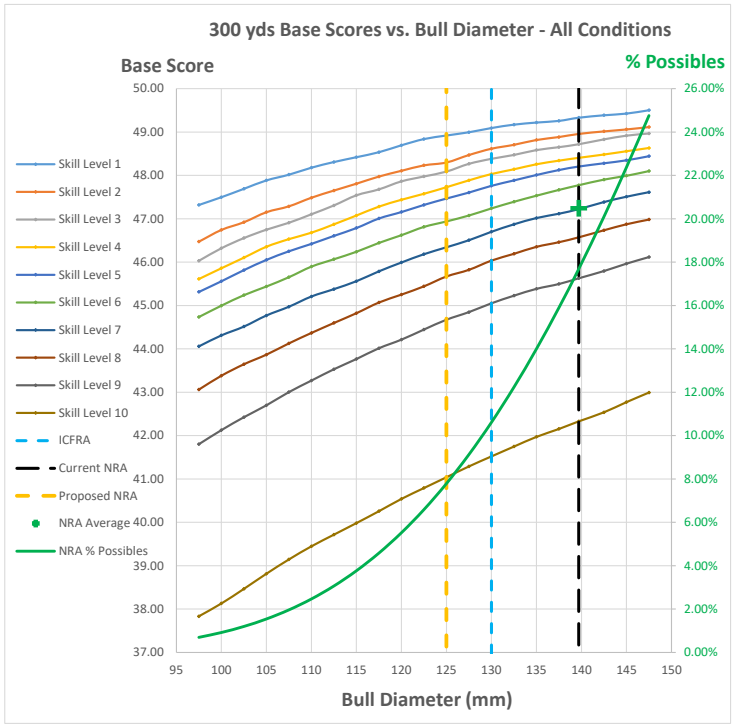
Bull Ø					ICFRA										Consid-ered			NRA Prop'd			
Inches	18.66	18.98	19.29	19.61	20.08	20.24	20.55	20.87	21.18	21.50	21.81	22.00	22.44	22.76	23.00	23.39	23.70	24.00	24.33	24.65	24.96
mm	474.00	482.00	490.00	498.00	510.00	514.00	522.00	530.00	538.00	546.00	554.00	558.80	570.00	578.00	584.20	594.00	602.00	609.60	618.00	626.00	634.00
MoA	1.811	1.842	1.872	1.902	1.947	1.962	1.992	2.022	2.052	2.082	2.112	2.130	2.172	2.202	2.226	2.263	2.293	2.321	2.353	2.383	2.413
Skill Level																					
Overall	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%	0.2%	0.3%	0.4%	0.4%	0.5%	0.6%	0.7%	0.8%	1.0%	1.2%	1.3%	1.5%	1.8%	2.1%	2.4%
1	0.5%	0.6%	0.7%	0.8%	1.1%	1.2%	1.4%	1.7%	2.0%	2.3%	2.7%	2.9%	3.6%	4.1%	4.5%	5.3%	6.0%	6.7%	7.5%	8.4%	9.4%
2	0.2%	0.2%	0.3%	0.3%	0.4%	0.5%	0.6%	0.7%	0.9%	1.0%	1.2%	1.4%	1.7%	2.0%	2.2%	2.6%	3.0%	3.4%	3.9%	4.4%	5.0%
3	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%	0.2%	0.3%	0.3%	0.4%	0.5%	0.5%	0.7%	0.8%	0.9%	1.1%	1.3%	1.5%	1.7%	2.0%	2.3%
4	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%	0.3%	0.3%	0.4%	0.4%	0.5%	0.6%	0.7%	0.9%	1.0%	1.2%	1.4%	1.6%	1.9%	2.1%	2.4%
5	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%	0.2%	0.3%	0.3%	0.4%	0.5%	0.5%	0.7%	0.8%	0.9%	1.1%	1.2%	1.4%
6	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%	0.3%	0.3%	0.4%	0.4%	0.5%	0.6%	0.7%	0.8%
7	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%	0.2%	0.3%	0.3%
8	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%	0.3%	0.3%	0.4%	0.4%	0.5%	0.6%	0.7%	0.8%
9	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
10	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%

1000 yds Average Percentage Possibles – Difficult Conditions

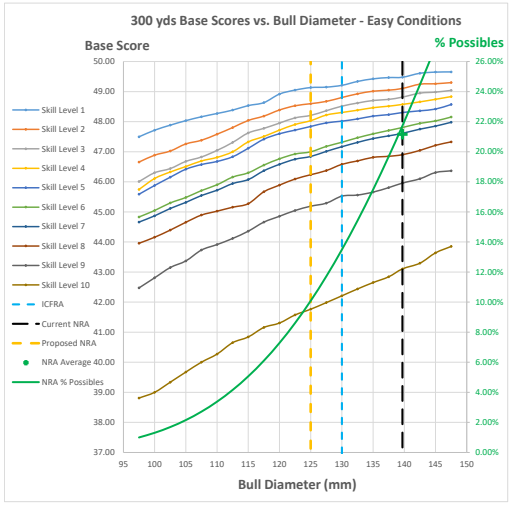
Bull Ø					ICFRA										Consid-ered			NRA Prop'd			
Inches	18.66	18.98	19.29	19.61	20.08	20.24	20.55	20.87	21.18	21.50	21.81	22.00	22.44	22.76	23.00	23.39	23.70	24.00	24.33	24.65	24.96
mm	474.00	482.00	490.00	498.00	510.00	514.00	522.00	530.00	538.00	546.00	554.00	558.80	570.00	578.00	584.20	594.00	602.00	609.60	618.00	626.00	634.00
MoA	1.811	1.842	1.872	1.902	1.947	1.962	1.992	2.022	2.052	2.082	2.112	2.130	2.172	2.202	2.226	2.263	2.293	2.321	2.353	2.383	2.413
Skill Level																					
Overall	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%	0.3%	0.3%	0.4%	0.4%	0.5%	0.6%	0.7%
1	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%	0.3%	0.3%	0.4%	0.4%	0.5%	0.6%	0.7%	0.9%	1.0%	1.2%	1.4%	1.6%	1.9%	2.1%	2.4%
2	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%	0.3%	0.3%	0.4%	0.4%	0.5%	0.6%	0.7%	0.9%	1.0%	1.2%	1.4%	1.6%	1.9%
3	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%	0.2%	0.3%	0.3%	0.4%	0.5%	0.6%	0.6%
4	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%	0.2%	0.3%	0.3%	0.4%	0.5%	0.6%	0.6%
5	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
6	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%	0.2%	0.3%	0.3%	0.4%	0.5%	0.6%	0.6%
7	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
8	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
9	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
10	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%

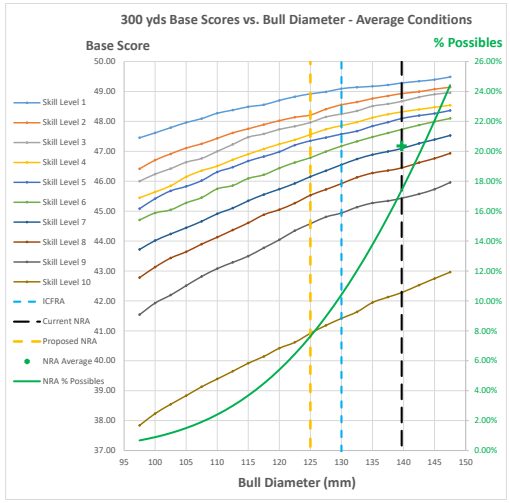
Annex G. UK Average Scores and Overall Percentage Possibles at Different Target Dimensions – Graphs

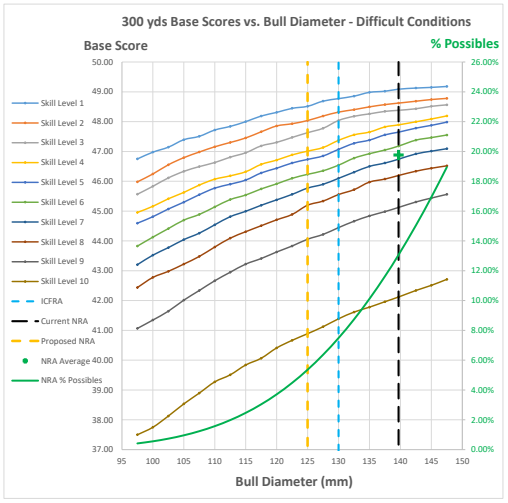
300 yds – All Conditions



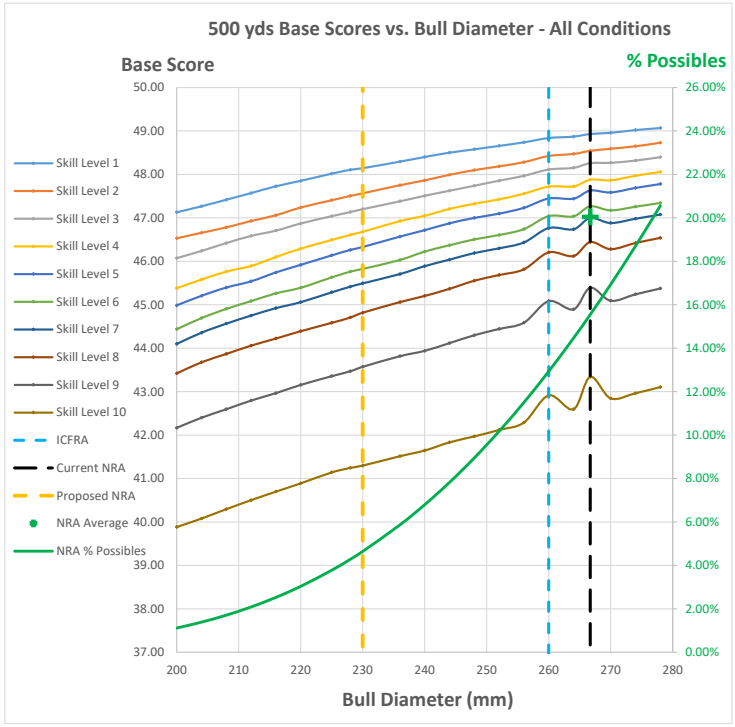
Below: Easy, Average & Difficult conditions







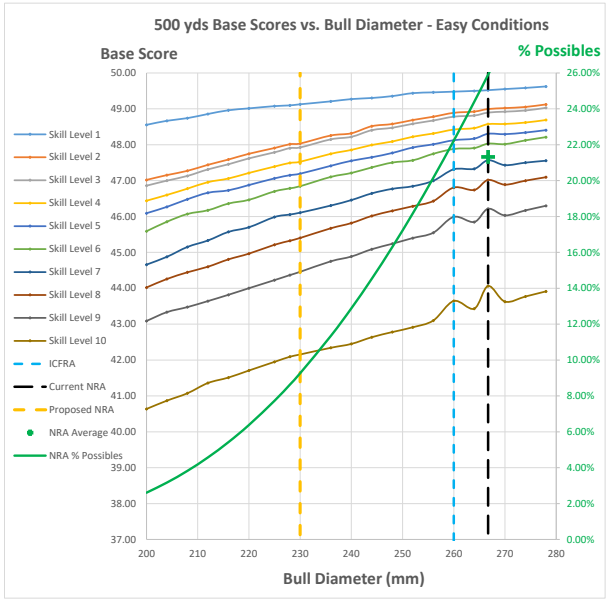
500 yds – All Conditions

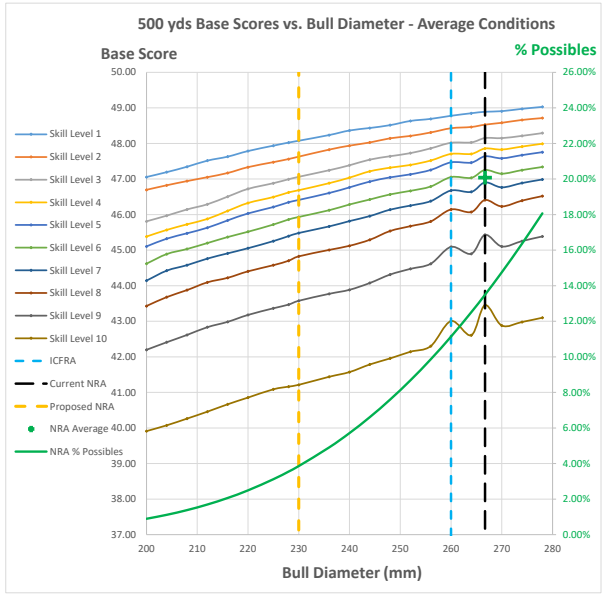


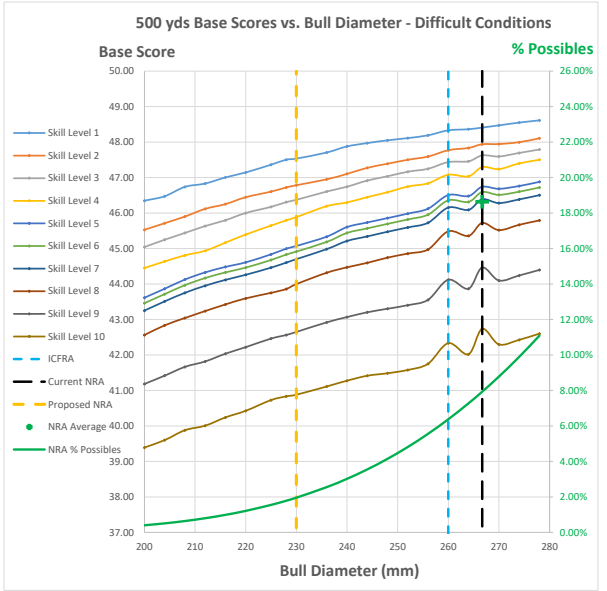
Note: the humps in the trace at ICFRA and Current NRA bull diameters are due to the Inner for those targets being larger than twice the Bull diameter. An Inner that is twice the diameter of the Bull has been used for all other points on the graph.

The effect is more noticeable at lower skill levels as higher skill level shooters rarely have shots near the outer edge of the Inner.

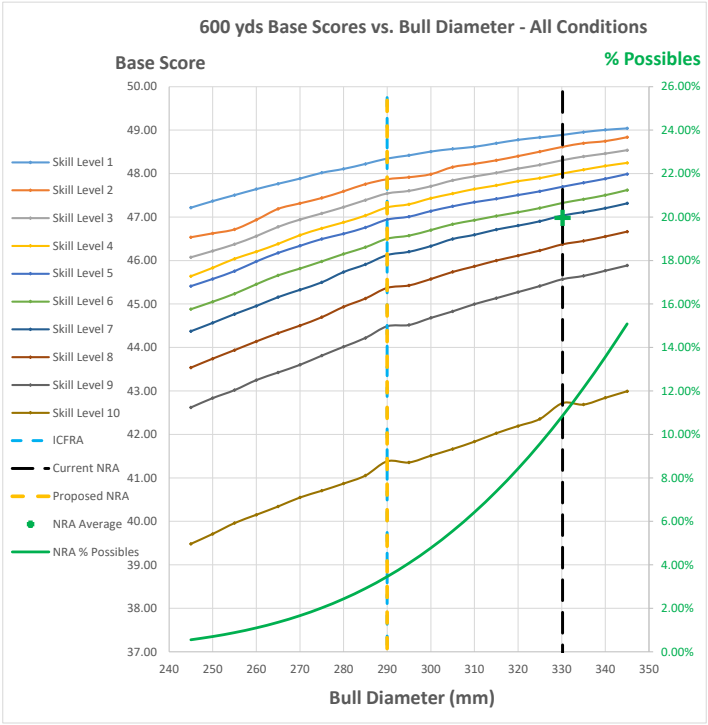
Below: Easy, Average & Difficult conditions







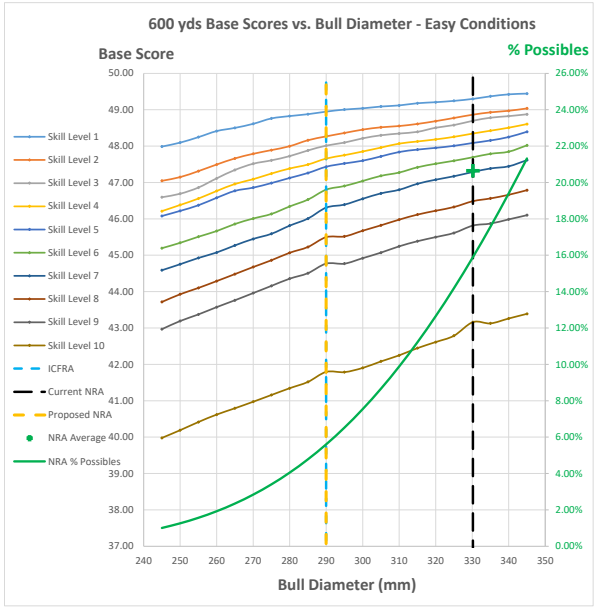
600 yds – All Conditions

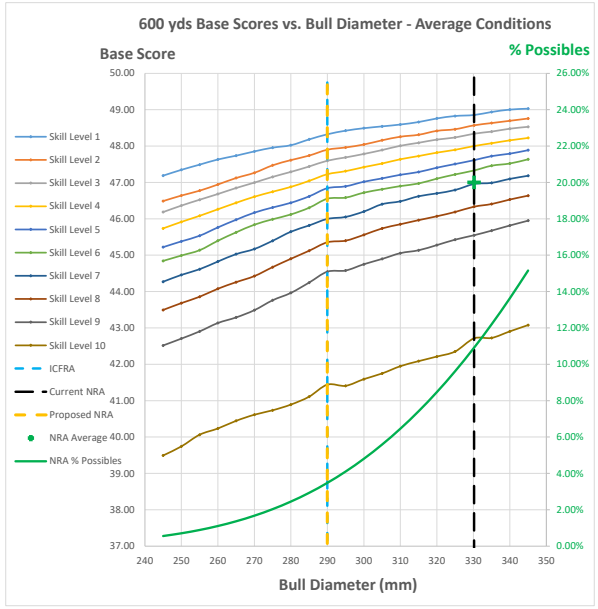


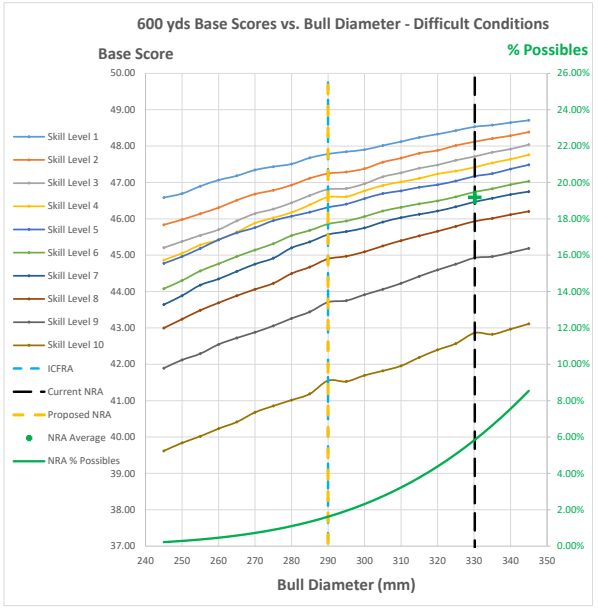
Note: the hump in the trace at the ICFRA Bull diameter is due to the Inner for that target being larger than twice the Bull diameter. An Inner that is exactly twice the diameter of the Bull has been used for all other points on the graph. The hump in the trace at the Current NRA Bull diameter is due to the Magpie for that target being larger than the Magpie (aiming mark) on the ICFRA target which is what has been used for all other points on the graph.

The effect is more noticeable at lower skill levels as higher skill level shooters rarely have shots near the outer edge of the Inner or Magpie.

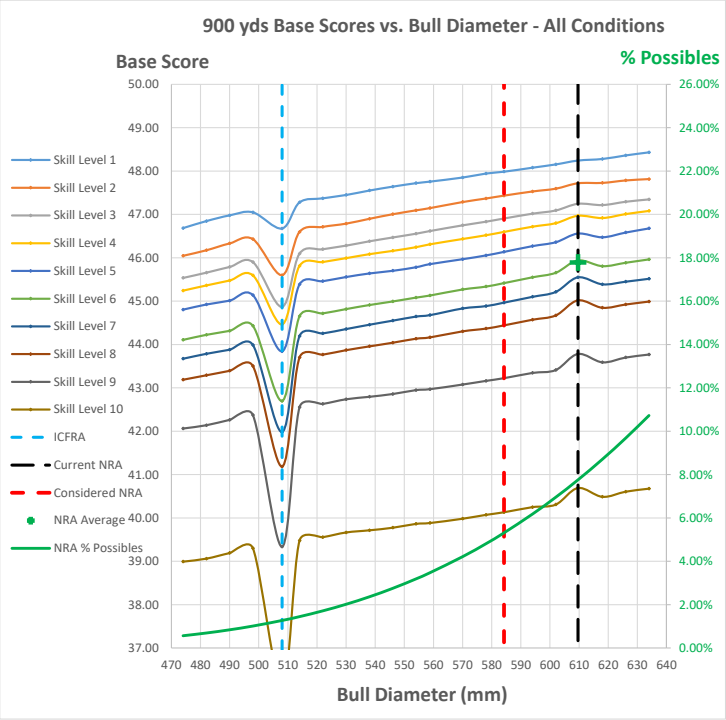
Below: Easy, Average & Difficult conditions







900 yds – All Conditions

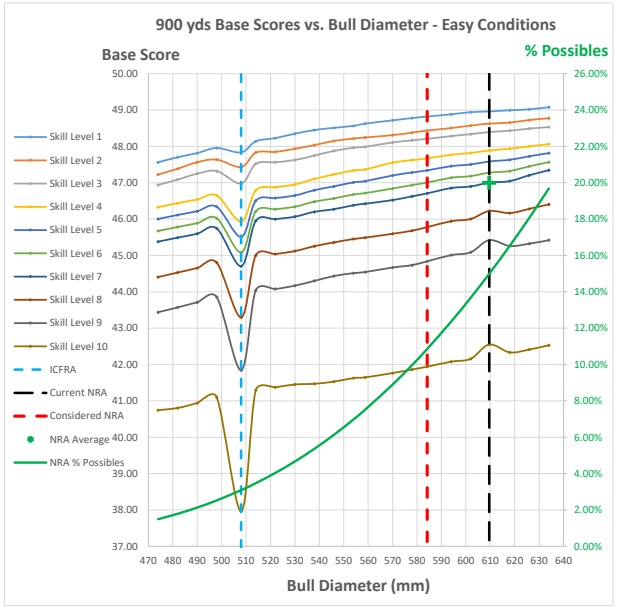


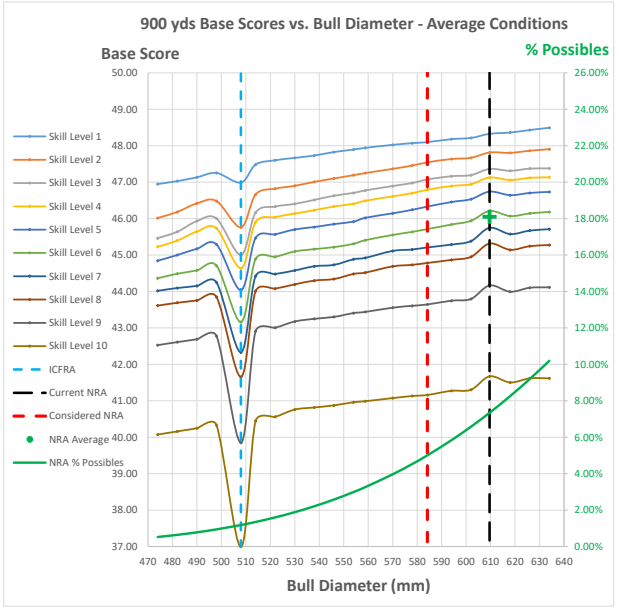
Note: the hump in the trace at the Current NRA bull diameter is due to the Inner being 48” (twice the Bull diameter). An Inner of 44” (ICFRA aiming mark size) has been used for all other points on the graph except at the ICFRA Bull diameter.

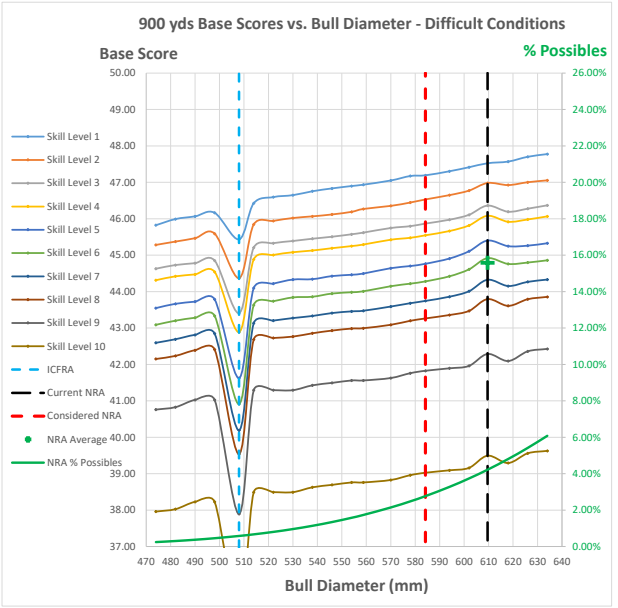
The dip at the ICFRA Bull diameter is due to the very narrow Inner (32”) and Magpie (44”) on the ICFRA Long Range target compared with the 44” Inner used to derive the other points on the graph.

The effect is more noticeable at lower skill levels as higher skill level shooters have fewer shots

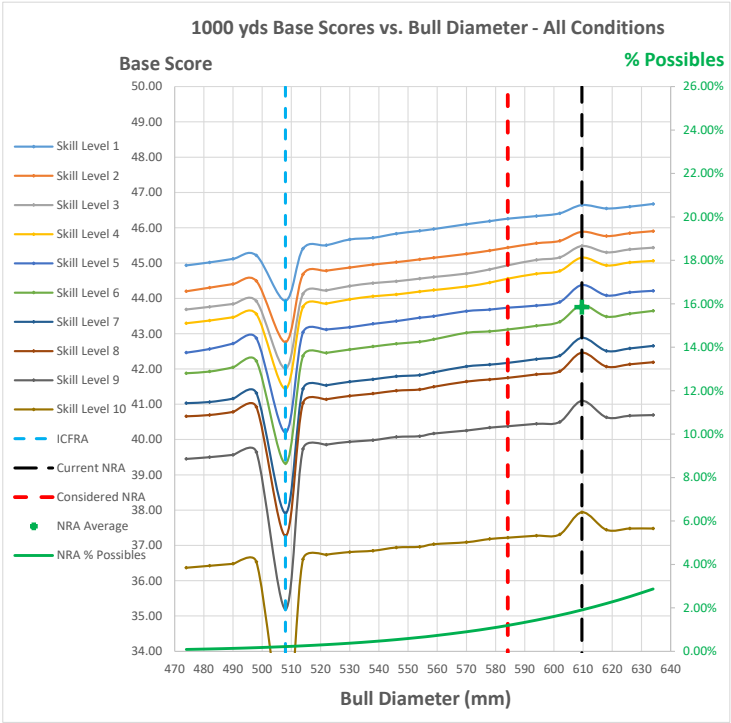
Below: Easy, Average & Difficult conditions







1000 yds – All Conditions

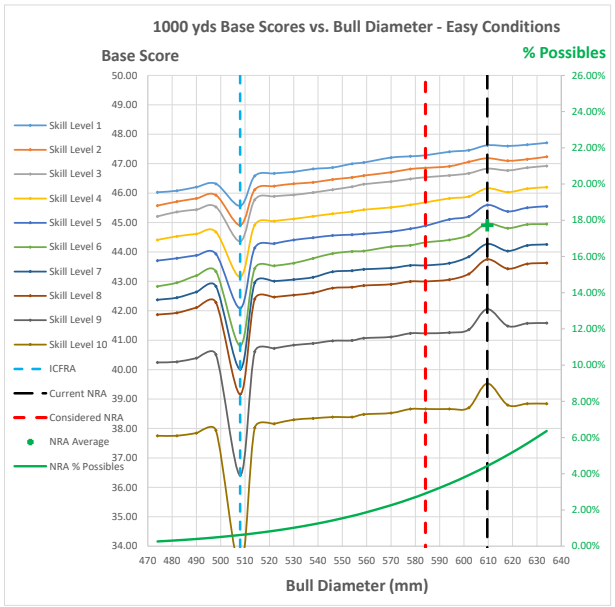


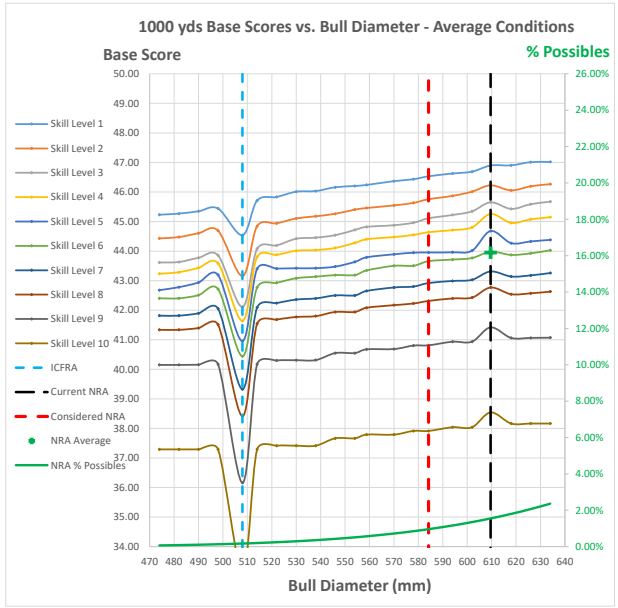
Note: the hump in the trace at the Current NRA bull diameter is due to the Inner being 48” (twice the Bull diameter). An Inner of 44” (ICFRA aiming mark size) has been used for all other points on the graph except at the ICFRA Bull diameter.

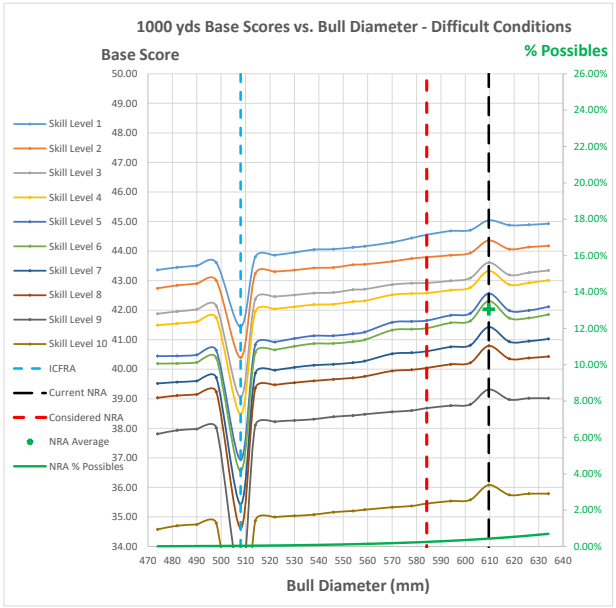
The dip at the ICFRA Bull diameter is due to the very narrow Inner (32”) and Magpie (44”) on the ICFRA Long Range target compared with the 44” Inner used to derive the other points on the graph.

The effect is more noticeable at lower skill levels as higher skill level shooters have fewer shots

Below: Easy, Average & Difficult conditions







Annex H. UK Average V Count At Different Target Dimensions

300 yds Average V Count – All Conditions

V Bull Ø						ICFRA						Prop'd						NRA			
Inches	2.28	2.36	2.40	2.46	2.52	2.56	2.64	2.70	2.76	2.83	2.87	2.95	2.99	3.05	3.11	3.17	3.23	3.30	3.35	3.41	3.46
mm	58.00	60.00	61.00	62.50	64.00	65.00	67.00	68.50	70.00	72.00	73.00	75.00	76.00	77.50	79.00	80.50	82.00	83.82	85.00	86.50	88.00
MoA	0.825	0.850	0.862	0.881	0.900	0.913	0.938	0.956	0.975	1.000	1.013	1.038	1.050	1.069	1.088	1.107	1.126	1.148	1.163	1.182	1.201
Skill Level																					
1	4.23	4.41	4.49	4.61	4.74	4.82	4.94	5.08	5.25	5.46	5.54	5.74	5.85	5.95	6.10	6.23	6.35	6.51	6.60	6.71	6.82
2	3.78	3.92	4.00	4.12	4.24	4.34	4.45	4.57	4.71	4.88	4.94	5.11	5.21	5.31	5.45	5.56	5.69	5.86	5.94	6.04	6.18
3	3.52	3.67	3.74	3.87	3.99	4.07	4.19	4.30	4.43	4.57	4.62	4.75	4.84	4.96	5.09	5.17	5.32	5.46	5.56	5.68	5.79
4	3.33	3.48	3.55	3.68	3.79	3.86	3.99	4.11	4.24	4.38	4.43	4.55	4.62	4.74	4.87	4.95	5.10	5.21	5.34	5.47	5.56
5	2.88	3.06	3.14	3.22	3.33	3.42	3.58	3.67	3.76	3.90	3.96	4.10	4.19	4.30	4.42	4.54	4.69	4.77	4.82	4.93	5.03
6	2.73	2.89	2.98	3.06	3.17	3.25	3.41	3.50	3.61	3.75	3.80	3.95	4.04	4.14	4.26	4.37	4.51	4.60	4.66	4.77	4.87
7	2.40	2.53	2.62	2.71	2.81	2.87	3.03	3.12	3.27	3.41	3.43	3.60	3.68	3.77	3.89	3.98	4.08	4.20	4.27	4.39	4.48
8	2.09	2.22	2.29	2.35	2.41	2.50	2.64	2.78	2.86	2.96	2.99	3.11	3.17	3.24	3.36	3.44	3.54	3.69	3.74	3.82	3.90
9	1.89	2.00	2.05	2.11	2.16	2.24	2.34	2.45	2.52	2.62	2.65	2.76	2.82	2.90	2.99	3.05	3.14	3.27	3.31	3.39	3.46
10	1.30	1.39	1.43	1.49	1.52	1.56	1.62	1.66	1.72	1.79	1.82	1.89	1.94	2.00	2.08	2.11	2.18	2.24	2.29	2.36	2.41

300 yds Average V Count – Easy Conditions

V Bull Ø						ICFRA						Prop'd						NRA			
Inches	2.28	2.36	2.40	2.46	2.52	2.56	2.64	2.70	2.76	2.83	2.87	2.95	2.99	3.05	3.11	3.17	3.23	3.30	3.35	3.41	3.46
mm	58.00	60.00	61.00	62.50	64.00	65.00	67.00	68.50	70.00	72.00	73.00	75.00	76.00	77.50	79.00	80.50	82.00	83.82	85.00	86.50	88.00
MoA	0.825	0.850	0.862	0.881	0.900	0.913	0.938	0.956	0.975	1.000	1.013	1.038	1.050	1.069	1.088	1.107	1.126	1.148	1.163	1.182	1.201
Skill Level																					
1	4.55	4.80	4.83	5.05	5.15	5.25	5.34	5.50	5.63	5.87	6.01	6.33	6.42	6.53	6.62	6.73	6.79	6.83	6.95	7.00	7.06
2	3.84	4.08	4.10	4.31	4.43	4.58	4.76	4.97	5.06	5.23	5.30	5.51	5.58	5.65	5.76	5.88	5.94	6.04	6.12	6.17	6.27
3	3.53	3.74	3.75	3.95	4.09	4.28	4.53	4.75	4.82	4.93	4.97	5.09	5.16	5.22	5.33	5.47	5.55	5.69	5.73	5.79	5.92
4	3.43	3.62	3.65	3.82	3.91	3.99	4.12	4.27	4.34	4.45	4.48	4.58	4.65	4.75	4.89	5.08	5.21	5.29	5.41	5.49	5.61
5	3.27	3.44	3.54	3.64	3.71	3.77	3.88	4.02	4.08	4.25	4.28	4.41	4.41	4.51	4.64	4.78	4.94	4.95	5.01	5.21	5.31
6	2.68	2.90	3.04	3.15	3.20	3.29	3.43	3.53	3.68	3.85	3.87	4.10	4.19	4.35	4.41	4.51	4.63	4.70	4.76	4.87	4.98
7	2.37	2.59	2.73	2.84	2.89	2.99	3.14	3.23	3.40	3.56	3.57	3.82	3.95	4.11	4.14	4.23	4.32	4.42	4.48	4.54	4.65
8	2.39	2.51	2.59	2.67	2.73	2.81	2.93	3.03	3.17	3.27	3.30	3.43	3.51	3.60	3.67	3.76	3.81	3.94	3.98	4.01	4.10
9	2.31	2.36	2.40	2.45	2.52	2.59	2.68	2.79	2.91	2.97	3.02	3.07	3.12	3.17	3.26	3.35	3.38	3.52	3.55	3.57	3.64
10	1.38	1.40	1.42	1.51	1.55	1.60	1.63	1.65	1.71	1.84	1.87	1.95	1.98	2.04	2.17	2.23	2.28	2.36	2.40	2.44	2.50

300 yds Average V Count – Average Conditions

V Bull Ø						ICFRA						Prop'd						NRA			
Inches	2.28	2.36	2.40	2.46	2.52	2.56	2.64	2.70	2.76	2.83	2.87	2.95	2.99	3.05	3.11	3.17	3.23	3.30	3.35	3.41	3.46
mm	58.00	60.00	61.00	62.50	64.00	65.00	67.00	68.50	70.00	72.00	73.00	75.00	76.00	77.50	79.00	80.50	82.00	83.82	85.00	86.50	88.00
MoA	0.825	0.850	0.862	0.881	0.900	0.913	0.938	0.956	0.975	1.000	1.013	1.038	1.050	1.069	1.088	1.107	1.126	1.148	1.163	1.182	1.201
Skill Level																					
1	4.22	4.38	4.47	4.59	4.72	4.80	4.93	5.06	5.24	5.40	5.46	5.62	5.76	5.86	6.00	6.15	6.29	6.46	6.55	6.66	6.79
2	3.86	3.96	4.04	4.16	4.27	4.35	4.40	4.51	4.64	4.81	4.86	5.06	5.13	5.25	5.38	5.45	5.60	5.82	5.87	5.93	6.07
3	3.39	3.55	3.64	3.78	3.93	4.00	4.17	4.27	4.42	4.52	4.61	4.74	4.79	4.95	5.10	5.13	5.29	5.40	5.55	5.70	5.77
4	3.30	3.42	3.50	3.63	3.75	3.81	3.93	4.03	4.18	4.30	4.37	4.51	4.57	4.67	4.78	4.86	4.97	5.08	5.21	5.33	5.40
5	2.83	3.04	3.11	3.21	3.35	3.43	3.61	3.71	3.81	3.96	4.00	4.06	4.18	4.28	4.40	4.50	4.62	4.72	4.76	4.86	4.97
6	2.71	2.89	2.96	3.04	3.19	3.27	3.44	3.54	3.64	3.79	3.84	3.91	4.01	4.11	4.25	4.35	4.47	4.58	4.63	4.75	4.86
7	2.26	2.37	2.45	2.50	2.63	2.71	2.86	2.98	3.07	3.21	3.24	3.36	3.43	3.51	3.67	3.75	3.88	4.04	4.10	4.25	4.34
8	1.96	2.11	2.20	2.25	2.34	2.43	2.55	2.71	2.78	2.89	2.91	3.06	3.11	3.18	3.30	3.36	3.50	3.68	3.73	3.85	3.94
9	1.83	1.98	2.04	2.11	2.17	2.24	2.32	2.44	2.51	2.60	2.62	2.75	2.82	2.91	2.99	3.04	3.15	3.27	3.31	3.42	3.49
10	1.21	1.34	1.42	1.46	1.48	1.51	1.57	1.59	1.64	1.71	1.75	1.82	1.91	1.93	2.03	2.05	2.09	2.16	2.24	2.33	2.36

300 yds Average V Count – Difficult Conditions

V Bull Ø						ICFRA						Prop'd						NRA			
Inches	2.28	2.36	2.40	2.46	2.52	2.56	2.64	2.70	2.76	2.83	2.87	2.95	2.99	3.05	3.11	3.17	3.23	3.30	3.35	3.41	3.46
mm	58.00	60.00	61.00	62.50	64.00	65.00	67.00	68.50	70.00	72.00	73.00	75.00	76.00	77.50	79.00	80.50	82.00	83.82	85.00	86.50	88.00
MoA	0.825	0.850	0.862	0.881	0.900	0.913	0.938	0.956	0.975	1.000	1.013	1.038	1.050	1.069	1.088	1.107	1.126	1.148	1.163	1.182	1.201
Skill Level																					
1	3.93	4.06	4.15	4.24	4.34	4.43	4.50	4.64	4.85	5.17	5.27	5.46	5.53	5.61	5.81	5.91	6.06	6.24	6.35	6.47	6.58
2	3.48	3.61	3.70	3.80	3.93	3.98	4.10	4.18	4.33	4.48	4.52	4.63	4.77	4.89	5.01	5.09	5.25	5.36	5.47	5.65	5.76
3	2.86	2.97	3.03	3.08	3.17	3.26	3.41	3.51	3.64	3.78	3.88	4.11	4.19	4.32	4.43	4.60	4.76	4.90	4.96	5.06	5.17
4	2.75	2.87	2.94	2.97	3.06	3.17	3.35	3.41	3.49	3.58	3.68	3.96	4.03	4.16	4.28	4.43	4.65	4.75	4.81	4.91	4.98
5	2.64	2.75	2.81	2.87	2.96	3.04	3.21	3.27	3.39	3.49	3.56	3.79	3.85	3.94	4.06	4.20	4.35	4.45	4.52	4.63	4.69
6	2.53	2.63	2.69	2.77	2.87	2.91	3.07	3.14	3.30	3.40	3.45	3.62	3.68	3.73	3.85	3.97	4.07	4.17	4.25	4.36	4.42
7	2.25	2.37	2.41	2.50	2.57	2.62	2.80	2.90	3.03	3.13	3.16	3.29	3.36	3.40	3.53	3.65	3.71	3.82	3.91	4.00	4.05
8	1.92	2.05	2.09	2.16	2.18	2.27	2.44	2.58	2.64	2.72	2.74	2.88	2.95	3.03	3.15	3.25	3.33	3.44	3.51	3.57	3.64
9	1.71	1.84	1.85	1.89	1.93	2.00	2.09	2.21	2.27	2.33	2.34	2.45	2.50	2.58	2.66	2.70	2.78	2.88	2.92	2.99	3.08
10	1.35	1.45	1.46	1.51	1.54	1.58	1.66	1.74	1.80	1.84	1.86	1.94	1.97	2.03	2.08	2.09	2.18	2.26	2.28	2.37	2.44

500 yds Average V Count – All Conditions

V Bull Ø							ICFRA		Prop'd									NRA			
Inches	4.13	4.33	4.43	4.53	4.72	4.92	5.12	5.31	5.43	5.51	5.61	5.71	5.81	5.91	6.00	6.10	6.20	6.30	6.40	6.50	6.59
mm	105.00	110.00	112.50	115.00	120.00	125.00	130.00	135.00	138.00	140.00	142.50	145.00	147.50	150.00	152.50	155.00	157.50	160.02	162.50	165.00	167.50
MoA	0.848	0.886	0.905	0.924	0.961	0.999	1.036	1.074	1.096	1.112	1.130	1.149	1.168	1.187	1.205	1.224	1.243	1.262	1.281	1.299	1.318
Skill Level																					
1	3.43	3.66	3.74	3.85	4.13	4.40	4.65	4.87	5.01	5.09	5.18	5.32	5.42	5.52	5.62	5.72	5.82	5.92	6.04	6.13	6.21
2	2.88	3.08	3.16	3.28	3.45	3.69	3.89	4.13	4.27	4.36	4.46	4.55	4.68	4.79	4.89	5.00	5.11	5.25	5.36	5.47	5.59
3	2.81	3.01	3.09	3.20	3.38	3.60	3.80	4.01	4.13	4.19	4.29	4.37	4.47	4.56	4.67	4.77	4.88	5.02	5.12	5.23	5.34
4	2.65	2.85	2.94	3.04	3.22	3.41	3.61	3.78	3.87	3.93	4.02	4.09	4.19	4.25	4.36	4.48	4.57	4.70	4.79	4.90	5.01
5	2.28	2.51	2.60	2.66	2.84	3.00	3.19	3.34	3.45	3.55	3.65	3.75	3.86	3.93	4.05	4.18	4.25	4.36	4.45	4.55	4.69
6	2.11	2.29	2.36	2.45	2.62	2.80	2.96	3.16	3.24	3.32	3.41	3.50	3.60	3.69	3.79	3.91	3.99	4.11	4.21	4.30	4.42
7	1.94	2.10	2.17	2.26	2.41	2.59	2.73	2.93	3.01	3.08	3.16	3.23	3.32	3.41	3.51	3.61	3.69	3.82	3.90	3.98	4.09
8	1.79	1.93	2.01	2.08	2.23	2.38	2.50	2.67	2.78	2.83	2.89	2.95	3.03	3.11	3.21	3.31	3.38	3.49	3.55	3.62	3.72
9	1.48	1.61	1.68	1.73	1.86	2.00	2.11	2.23	2.32	2.37	2.43	2.48	2.54	2.61	2.69	2.78	2.84	2.92	2.97	3.04	3.10
10	1.09	1.18	1.24	1.28	1.37	1.50	1.59	1.67	1.73	1.77	1.82	1.87	1.90	1.97	2.02	2.09	2.14	2.19	2.23	2.29	2.32

500 yds Average V Count – Easy Conditions

V Bull Ø							ICFRA		Prop'd									NRA			
Inches	4.13	4.33	4.43	4.53	4.72	4.92	5.12	5.31	5.43	5.51	5.61	5.71	5.81	5.91	6.00	6.10	6.20	6.30	6.40	6.50	6.59
mm	105.00	110.00	112.50	115.00	120.00	125.00	130.00	135.00	138.00	140.00	142.50	145.00	147.50	150.00	152.50	155.00	157.50	160.02	162.50	165.00	167.50
MoA	0.848	0.886	0.905	0.924	0.961	0.999	1.036	1.074	1.096	1.112	1.130	1.149	1.168	1.187	1.205	1.224	1.243	1.262	1.281	1.299	1.318
Skill Level																					
1	3.75	4.08	4.24	4.40	4.64	4.97	5.27	5.44	5.55	5.69	5.85	6.05	6.14	6.31	6.51	6.63	6.75	6.84	6.92	6.92	7.02
2	3.31	3.58	3.67	3.81	4.10	4.36	4.64	4.92	5.12	5.25	5.33	5.42	5.50	5.65	5.74	5.79	5.90	5.99	6.13	6.20	6.32
3	3.26	3.43	3.52	3.63	3.81	4.11	4.40	4.66	4.81	4.88	5.00	5.08	5.18	5.28	5.41	5.50	5.57	5.73	5.84	5.98	6.08
4	2.96	3.17	3.29	3.40	3.57	3.78	3.99	4.20	4.32	4.37	4.51	4.55	4.65	4.72	4.83	4.93	5.03	5.16	5.24	5.33	5.43
5	2.85	3.08	3.22	3.32	3.49	3.66	3.84	4.04	4.14	4.19	4.33	4.36	4.46	4.51	4.60	4.72	4.82	4.95	5.01	5.08	5.18
6	2.71	2.91	3.01	3.08	3.24	3.39	3.52	3.66	3.79	3.92	4.01	4.09	4.22	4.27	4.33	4.51	4.54	4.68	4.77	4.86	4.99
7	2.33	2.49	2.54	2.64	2.79	2.94	3.10	3.31	3.39	3.43	3.52	3.61	3.73	3.82	3.94	4.05	4.12	4.26	4.35	4.41	4.53
8	1.97	2.14	2.19	2.30	2.41	2.58	2.71	2.93	3.05	3.09	3.19	3.26	3.33	3.41	3.53	3.61	3.68	3.78	3.86	3.90	4.03
9	1.65	1.83	1.89	1.98	2.09	2.25	2.37	2.56	2.72	2.77	2.89	2.93	2.98	3.02	3.11	3.18	3.25	3.32	3.39	3.42	3.55
10	1.04	1.10	1.18	1.25	1.38	1.51	1.65	1.75	1.80	1.88	1.95	1.97	2.03	2.09	2.13	2.19	2.25	2.31	2.38	2.44	2.48

500 yds Average V Count – Average Conditions

V Bull Ø							ICFRA		Prop'd									NRA			
Inches	4.13	4.33	4.43	4.53	4.72	4.92	5.12	5.31	5.43	5.51	5.61	5.71	5.81	5.91	6.00	6.10	6.20	6.30	6.40	6.50	6.59
mm	105.00	110.00	112.50	115.00	120.00	125.00	130.00	135.00	138.00	140.00	142.50	145.00	147.50	150.00	152.50	155.00	157.50	160.02	162.50	165.00	167.50
MoA	0.848	0.886	0.905	0.924	0.961	0.999	1.036	1.074	1.096	1.112	1.130	1.149	1.168	1.187	1.205	1.224	1.243	1.262	1.281	1.299	1.318
Skill Level																					
1	3.36	3.55	3.64	3.76	4.03	4.25	4.48	4.70	4.83	4.89	4.99	5.14	5.26	5.35	5.46	5.58	5.70	5.81	5.92	6.04	6.13
2	2.86	3.09	3.17	3.28	3.47	3.71	3.90	4.10	4.23	4.31	4.41	4.50	4.63	4.72	4.83	4.96	5.06	5.19	5.28	5.41	5.50
3	2.75	2.95	3.03	3.15	3.34	3.56	3.75	3.92	4.03	4.07	4.16	4.24	4.31	4.39	4.51	4.63	4.75	4.88	4.99	5.11	5.20
4	2.35	2.65	2.73	2.79	3.03	3.20	3.41	3.61	3.73	3.80	3.92	4.00	4.09	4.16	4.36	4.45	4.54	4.64	4.70	4.83	5.00
5	2.13	2.36	2.47	2.55	2.77	2.95	3.13	3.35	3.45	3.54	3.65	3.74	3.83	3.93	4.06	4.17	4.26	4.35	4.42	4.52	4.67
6	1.98	2.15	2.26	2.38	2.57	2.76	2.92	3.14	3.22	3.32	3.41	3.51	3.59	3.71	3.78	3.90	3.99	4.10	4.16	4.24	4.36
7	1.88	2.04	2.15	2.24	2.42	2.59	2.72	2.90	2.98	3.05	3.11	3.20	3.29	3.39	3.46	3.58	3.66	3.77	3.83	3.92	4.00
8	1.77	1.93	2.04	2.11	2.26	2.43	2.53	2.66	2.74	2.79	2.81	2.89	3.00	3.07	3.15	3.26	3.33	3.45	3.50	3.60	3.64
9	1.55	1.66	1.74	1.79	1.92	2.07	2.16	2.26	2.34	2.37	2.40	2.49	2.56	2.64	2.71	2.80	2.87	2.95	3.00	3.09	3.13
10	1.15	1.20	1.26	1.28	1.37	1.49	1.56	1.63	1.69	1.71	1.75	1.82	1.85	1.94	1.99	2.05	2.10	2.13	2.18	2.25	2.28

500 yds Average V Count – Difficult Conditions

V Bull Ø							ICFRA		Prop'd									NRA			
Inches	4.13	4.33	4.43	4.53	4.72	4.92	5.12	5.31	5.43	5.51	5.61	5.71	5.81	5.91	6.00	6.10	6.20	6.30	6.40	6.50	6.59
mm	105.00	110.00	112.50	115.00	120.00	125.00	130.00	135.00	138.00	140.00	142.50	145.00	147.50	150.00	152.50	155.00	157.50	160.02	162.50	165.00	167.50
MoA	0.848	0.886	0.905	0.924	0.961	0.999	1.036	1.074	1.096	1.112	1.130	1.149	1.168	1.187	1.205	1.224	1.243	1.262	1.281	1.299	1.318
Skill Level																					
1	2.94	3.17	3.20	3.30	3.56	3.84	4.09	4.32	4.43	4.54	4.65	4.78	4.85	4.95	5.06	5.11	5.15	5.26	5.37	5.43	5.50
2	2.55	2.68	2.75	2.89	3.01	3.20	3.37	3.57	3.71	3.76	3.82	3.90	3.98	4.08	4.17	4.25	4.41	4.57	4.73	4.81	4.95
3	2.53	2.64	2.70	2.85	2.96	3.13	3.30	3.51	3.65	3.70	3.75	3.83	3.91	4.01	4.10	4.17	4.34	4.50	4.66	4.74	4.88
4	2.30	2.45	2.52	2.61	2.76	2.95	3.18	3.32	3.37	3.44	3.51	3.60	3.70	3.77	3.86	3.97	4.05	4.17	4.27	4.40	4.49
5	1.93	2.08	2.12	2.17	2.28	2.48	2.63	2.79	2.86	2.95	3.02	3.08	3.18	3.24	3.35	3.45	3.54	3.68	3.84	3.95	4.03
6	1.90	2.03	2.06	2.10	2.22	2.41	2.54	2.72	2.79	2.88	2.94	2.98	3.06	3.11	3.24	3.31	3.41	3.57	3.74	3.85	3.93
7	1.77	1.86	1.90	1.94	2.08	2.22	2.35	2.52	2.61	2.68	2.74	2.76	2.84	2.91	3.05	3.13	3.20	3.35	3.45	3.53	3.65
8	1.53	1.65	1.71	1.73	1.87	1.98	2.09	2.24	2.34	2.38	2.43	2.46	2.51	2.59	2.72	2.81	2.86	2.98	3.00	3.05	3.15
9	1.19	1.40	1.45	1.47	1.53	1.69	1.77	1.86	1.92	1.96	2.01	2.05	2.09	2.13	2.20	2.28	2.33	2.41	2.42	2.46	2.47
10	0.94	1.11	1.15	1.17	1.22	1.34	1.41	1.48	1.53	1.56	1.59	1.62	1.66	1.69	1.75	1.81	1.85	1.92	1.92	1.95	1.96

600 yds Average V Count – All Conditions

V Bull Ø					ICFRA							Prop'd						NRA			
Inches	5.12	5.28	5.43	5.59	5.71	5.91	6.06	6.22	6.38	6.54	6.69	6.85	7.01	7.17	7.32	7.48	7.64	7.80	7.95	8.11	8.27
mm	130.00	134.00	138.00	142.00	145.00	150.00	154.00	158.00	162.00	166.00	170.00	174.00	178.00	182.00	186.00	190.00	194.00	198.12	202.00	206.00	210.00
MoA	0.864	0.889	0.914	0.939	0.958	0.989	1.014	1.039	1.064	1.089	1.114	1.139	1.164	1.189	1.214	1.240	1.265	1.290	1.315	1.340	1.365
Skill Level																					
1	3.42	3.58	3.72	3.85	3.98	4.15	4.29	4.45	4.62	4.76	4.93	5.05	5.18	5.32	5.47	5.59	5.72	5.85	6.01	6.15	6.25
2	2.98	3.14	3.30	3.42	3.53	3.72	3.89	4.05	4.20	4.35	4.48	4.60	4.73	4.89	5.01	5.13	5.27	5.40	5.52	5.67	5.82
3	2.67	2.79	2.93	3.04	3.13	3.34	3.48	3.64	3.78	3.92	4.08	4.20	4.30	4.47	4.59	4.72	4.87	5.01	5.13	5.26	5.43
4	2.67	2.77	2.90	3.02	3.10	3.23	3.35	3.50	3.63	3.74	3.88	4.02	4.15	4.26	4.36	4.50	4.64	4.77	4.90	5.02	5.16
5	2.37	2.48	2.57	2.67	2.76	2.97	3.09	3.20	3.31	3.43	3.57	3.73	3.85	3.97	4.09	4.22	4.34	4.42	4.52	4.64	4.76
6	2.27	2.38	2.47	2.57	2.65	2.84	2.96	3.07	3.17	3.29	3.42	3.57	3.68	3.80	3.91	4.04	4.16	4.26	4.36	4.48	4.59
7	2.03	2.15	2.23	2.33	2.41	2.55	2.66	2.76	2.86	2.95	3.07	3.18	3.30	3.41	3.50	3.62	3.76	3.89	3.99	4.11	4.21
8	1.81	1.92	2.00	2.09	2.17	2.29	2.39	2.48	2.59	2.69	2.80	2.91	3.03	3.12	3.22	3.32	3.44	3.57	3.66	3.76	3.86
9	1.56	1.65	1.73	1.81	1.89	1.99	2.08	2.16	2.28	2.40	2.48	2.59	2.71	2.78	2.87	2.96	3.06	3.18	3.27	3.35	3.43
10	1.12	1.16	1.22	1.29	1.34	1.39	1.47	1.53	1.60	1.66	1.70	1.78	1.83	1.89	1.96	2.04	2.12	2.19	2.29	2.34	2.41

600 yds Average V Count – Easy Conditions

V Bull Ø					ICFRA							Prop'd						NRA			
Inches	5.12	5.28	5.43	5.59	5.71	5.91	6.06	6.22	6.38	6.54	6.69	6.85	7.01	7.17	7.32	7.48	7.64	7.80	7.95	8.11	8.27
mm	130.00	134.00	138.00	142.00	145.00	150.00	154.00	158.00	162.00	166.00	170.00	174.00	178.00	182.00	186.00	190.00	194.00	198.12	202.00	206.00	210.00
MoA	0.864	0.889	0.914	0.939	0.958	0.989	1.014	1.039	1.064	1.089	1.114	1.139	1.164	1.189	1.214	1.240	1.265	1.290	1.315	1.340	1.365
Skill Level																					
1	3.96	4.05	4.21	4.31	4.35	4.47	4.59	4.70	4.88	5.06	5.31	5.49	5.69	5.80	6.00	6.14	6.23	6.43	6.57	6.66	6.79
2	3.25	3.39	3.57	3.70	3.78	4.02	4.15	4.26	4.39	4.56	4.77	4.87	4.98	5.16	5.29	5.38	5.61	5.74	5.86	5.97	6.10
3	2.90	3.01	3.16	3.28	3.31	3.54	3.68	3.77	3.88	4.04	4.30	4.41	4.50	4.68	4.84	4.95	5.20	5.36	5.50	5.59	5.77
4	2.87	2.98	3.03	3.13	3.27	3.52	3.69	3.81	3.92	4.06	4.24	4.35	4.57	4.69	4.79	4.93	5.03	5.11	5.21	5.33	5.48
5	2.61	2.74	2.82	2.93	3.05	3.26	3.42	3.52	3.65	3.77	3.92	4.04	4.22	4.34	4.43	4.57	4.69	4.81	4.91	5.03	5.15
6	2.23	2.40	2.50	2.63	2.72	2.89	3.04	3.11	3.25	3.35	3.47	3.59	3.71	3.85	3.91	4.05	4.21	4.37	4.47	4.59	4.66
7	2.05	2.21	2.30	2.42	2.51	2.65	2.80	2.88	3.00	3.11	3.22	3.33	3.45	3.58	3.64	3.77	3.92	4.08	4.18	4.29	4.35
8	1.87	2.00	2.06	2.17	2.25	2.38	2.52	2.61	2.72	2.85	2.95	3.05	3.18	3.28	3.37	3.48	3.59	3.71	3.82	3.91	3.99
9	1.65	1.74	1.78	1.87	1.94	2.04	2.17	2.27	2.36	2.49	2.58	2.66	2.79	2.88	2.98	3.08	3.17	3.27	3.38	3.45	3.54
10	1.13	1.17	1.22	1.29	1.32	1.36	1.42	1.50	1.56	1.65	1.69	1.75	1.83	1.92	2.00	2.11	2.22	2.29	2.41	2.47	2.56

600 yds Average V Count – Average Conditions

V Bull Ø					ICFRA							Prop'd						NRA			
Inches	5.12	5.28	5.43	5.59	5.71	5.91	6.06	6.22	6.38	6.54	6.69	6.85	7.01	7.17	7.32	7.48	7.64	7.80	7.95	8.11	8.27
mm	130.00	134.00	138.00	142.00	145.00	150.00	154.00	158.00	162.00	166.00	170.00	174.00	178.00	182.00	186.00	190.00	194.00	198.12	202.00	206.00	210.00
MoA	0.864	0.889	0.914	0.939	0.958	0.989	1.014	1.039	1.064	1.089	1.114	1.139	1.164	1.189	1.214	1.240	1.265	1.290	1.315	1.340	1.365
Skill Level																					
1	3.40	3.59	3.72	3.86	3.98	4.13	4.28	4.45	4.61	4.75	4.89	4.99	5.09	5.25	5.41	5.54	5.66	5.79	5.95	6.08	6.18
2	2.96	3.13	3.29	3.40	3.50	3.69	3.88	4.04	4.18	4.33	4.46	4.57	4.70	4.82	4.96	5.10	5.22	5.34	5.47	5.63	5.80
3	2.84	2.94	3.05	3.16	3.23	3.34	3.47	3.59	3.74	3.86	3.99	4.10	4.25	4.37	4.53	4.67	4.82	4.97	5.08	5.22	5.33
4	2.64	2.74	2.85	2.96	3.02	3.17	3.29	3.39	3.53	3.65	3.79	3.92	4.05	4.17	4.31	4.45	4.59	4.72	4.82	4.96	5.07
5	2.37	2.47	2.59	2.71	2.76	2.96	3.08	3.16	3.27	3.40	3.55	3.71	3.81	3.93	4.06	4.18	4.32	4.41	4.51	4.64	4.75
6	2.21	2.30	2.43	2.55	2.60	2.82	2.94	3.01	3.11	3.24	3.40	3.57	3.66	3.77	3.90	4.01	4.15	4.22	4.31	4.44	4.56
7	1.99	2.09	2.15	2.24	2.33	2.48	2.58	2.68	2.78	2.87	2.99	3.10	3.26	3.34	3.44	3.55	3.70	3.81	3.89	3.99	4.13
8	1.83	1.93	2.01	2.08	2.18	2.30	2.39	2.48	2.59	2.69	2.79	2.90	3.04	3.14	3.23	3.33	3.46	3.57	3.65	3.75	3.88
9	1.50	1.62	1.74	1.79	1.88	1.96	2.03	2.10	2.22	2.33	2.40	2.53	2.64	2.76	2.83	2.90	3.02	3.12	3.21	3.29	3.43
10	1.16	1.17	1.25	1.30	1.37	1.43	1.49	1.56	1.63	1.67	1.74	1.81	1.85	1.88	1.95	2.00	2.07	2.15	2.24	2.30	2.36

600 yds Average V Count – Difficult Conditions

V Bull Ø					ICFRA							Prop'd						NRA			
Inches	5.12	5.28	5.43	5.59	5.71	5.91	6.06	6.22	6.38	6.54	6.69	6.85	7.01	7.17	7.32	7.48	7.64	7.80	7.95	8.11	8.27
mm	130.00	134.00	138.00	142.00	145.00	150.00	154.00	158.00	162.00	166.00	170.00	174.00	178.00	182.00	186.00	190.00	194.00	198.12	202.00	206.00	210.00
MoA	0.864	0.889	0.914	0.939	0.958	0.989	1.014	1.039	1.064	1.089	1.114	1.139	1.164	1.189	1.214	1.240	1.265	1.290	1.315	1.340	1.365
Skill Level																					
1	2.84	3.00	3.14	3.28	3.42	3.56	3.78	3.98	4.13	4.29	4.37	4.52	4.69	4.89	4.98	5.07	5.18	5.33	5.47	5.65	5.79
2	2.54	2.66	2.79	2.91	3.04	3.23	3.36	3.54	3.72	3.83	3.94	4.08	4.20	4.39	4.47	4.59	4.70	4.84	4.93	5.09	5.24
3	2.42	2.52	2.64	2.76	2.88	3.10	3.19	3.36	3.55	3.65	3.76	3.89	3.99	4.18	4.26	4.38	4.50	4.64	4.71	4.86	5.01
4	2.46	2.56	2.71	2.84	2.92	2.98	3.14	3.32	3.40	3.43	3.54	3.74	3.85	3.90	3.92	4.05	4.22	4.25	4.38	4.44	4.58
5	2.15	2.25	2.35	2.42	2.49	2.67	2.76	2.89	2.99	3.10	3.20	3.37	3.45	3.58	3.69	3.82	3.94	4.02	4.13	4.27	4.36
6	2.06	2.16	2.25	2.33	2.39	2.55	2.64	2.77	2.86	2.95	3.06	3.21	3.28	3.41	3.52	3.64	3.76	3.85	3.97	4.10	4.20
7	1.96	2.06	2.14	2.22	2.27	2.41	2.49	2.62	2.71	2.77	2.90	3.02	3.08	3.21	3.32	3.43	3.55	3.65	3.78	3.90	4.01
8	1.56	1.64	1.71	1.82	1.89	2.01	2.08	2.15	2.30	2.42	2.51	2.64	2.75	2.79	2.89	2.99	3.08	3.24	3.32	3.41	3.46
9	1.42	1.49	1.56	1.67	1.72	1.83	1.92	1.98	2.10	2.19	2.26	2.38	2.47	2.51	2.60	2.69	2.77	2.90	2.98	3.05	3.10
10	1.09	1.13	1.20	1.28	1.32	1.38	1.49	1.54	1.61	1.66	1.68	1.76	1.81	1.87	1.93	2.00	2.07	2.13	2.19	2.24	2.29

900 yds Average V Count – All Conditions

V Bull Ø							ICFRA										Consid-ered	NRA Prop'd			
Inches	7.68	8.07	8.46	8.86	9.25	9.65	10.04	10.43	11.00	11.22	11.50	12.01	12.40	12.80	13.20	13.58	13.80	14.40	14.76	15.16	15.55
mm	195.00	205.00	215.00	225.00	235.00	245.00	255.00	265.00	279.40	285.00	292.10	305.00	315.00	325.00	335.28	345.00	350.52	365.76	375.00	385.00	395.00
MoA	0.847	0.889	0.931	0.973	1.014	1.056	1.098	1.140	1.200	1.223	1.253	1.307	1.349	1.390	1.433	1.474	1.497	1.561	1.599	1.641	1.683
Skill Level																					
1	1.88	2.12	2.31	2.50	2.69	2.86	3.00	3.22	3.45	3.55	3.71	3.97	4.14	4.35	4.53	4.76	4.85	5.12	5.28	5.40	5.55
2	1.66	1.82	2.01	2.19	2.32	2.48	2.67	2.84	3.09	3.20	3.31	3.52	3.69	3.87	4.06	4.25	4.32	4.57	4.77	4.91	5.03
3	1.57	1.71	1.88	2.05	2.18	2.32	2.50	2.65	2.87	2.97	3.06	3.25	3.41	3.58	3.78	3.94	4.03	4.27	4.45	4.59	4.71
4	1.48	1.62	1.77	1.93	2.09	2.22	2.37	2.50	2.69	2.78	2.85	3.01	3.17	3.34	3.54	3.68	3.79	4.02	4.17	4.31	4.43
5	1.40	1.54	1.66	1.82	2.00	2.11	2.24	2.35	2.51	2.60	2.66	2.80	2.95	3.11	3.32	3.44	3.57	3.80	3.91	4.05	4.18
6	1.29	1.42	1.54	1.68	1.84	1.97	2.08	2.20	2.36	2.43	2.48	2.63	2.76	2.92	3.12	3.24	3.34	3.56	3.66	3.80	3.93
7	1.16	1.28	1.38	1.51	1.64	1.78	1.87	2.01	2.16	2.21	2.24	2.41	2.51	2.68	2.86	2.98	3.04	3.26	3.35	3.47	3.61
8	1.06	1.17	1.27	1.38	1.49	1.62	1.71	1.84	1.98	2.02	2.06	2.22	2.32	2.47	2.64	2.75	2.79	3.00	3.09	3.20	3.35
9	0.93	1.03	1.12	1.22	1.31	1.40	1.48	1.57	1.69	1.74	1.81	1.94	2.03	2.15	2.28	2.37	2.42	2.60	2.71	2.80	2.96
10	0.68	0.77	0.84	0.90	0.97	1.01	1.07	1.12	1.21	1.26	1.33	1.43	1.51	1.58	1.64	1.71	1.76	1.89	2.00	2.06	2.21

900 yds Average V Count – Easy Conditions

V Bull Ø							ICFRA										Consid-ered	NRA Prop'd			
Inches	7.68	8.07	8.46	8.86	9.25	9.65	10.04	10.43	11.00	11.22	11.50	12.01	12.40	12.80	13.20	13.58	13.80	14.40	14.76	15.16	15.55
mm	195.00	205.00	215.00	225.00	235.00	245.00	255.00	265.00	279.40	285.00	292.10	305.00	315.00	325.00	335.28	345.00	350.52	365.76	375.00	385.00	395.00
MoA	0.847	0.889	0.931	0.973	1.014	1.056	1.098	1.140	1.200	1.223	1.253	1.307	1.349	1.390	1.433	1.474	1.497	1.561	1.599	1.641	1.683
Skill Level																					
1	2.51	2.78	2.93	3.13	3.37	3.54	3.76	4.03	4.39	4.51	4.61	4.86	5.05	5.27	5.41	5.58	5.66	6.02	6.16	6.33	6.53
2	1.96	2.20	2.43	2.59	2.76	2.93	3.05	3.32	3.57	3.68	3.86	4.10	4.31	4.49	4.71	5.00	5.08	5.39	5.54	5.74	5.88
3	1.83	2.05	2.24	2.42	2.56	2.74	2.90	3.15	3.37	3.49	3.63	3.87	4.07	4.23	4.48	4.73	4.79	5.10	5.29	5.47	5.63
4	1.76	1.92	2.06	2.26	2.37	2.54	2.78	2.98	3.17	3.29	3.37	3.62	3.82	3.95	4.23	4.41	4.46	4.77	5.00	5.13	5.29
5	1.53	1.65	1.77	1.94	2.09	2.24	2.43	2.57	2.81	2.92	3.01	3.21	3.39	3.57	3.81	3.99	4.08	4.36	4.51	4.65	4.81
6	1.41	1.51	1.62	1.78	1.95	2.08	2.25	2.35	2.62	2.73	2.84	3.00	3.18	3.39	3.59	3.79	3.89	4.15	4.26	4.41	4.57
7	1.32	1.41	1.51	1.66	1.83	1.97	2.11	2.20	2.48	2.58	2.68	2.83	3.00	3.21	3.40	3.59	3.69	3.96	4.04	4.19	4.35
8	1.16	1.23	1.33	1.46	1.63	1.77	1.88	1.99	2.19	2.26	2.32	2.46	2.60	2.77	2.96	3.08	3.15	3.43	3.51	3.63	3.81
9	1.05	1.12	1.21	1.34	1.50	1.65	1.74	1.86	2.02	2.06	2.10	2.24	2.35	2.50	2.69	2.77	2.82	3.10	3.18	3.28	3.48
10	0.75	0.89	0.97	1.06	1.14	1.14	1.18	1.26	1.35	1.45	1.49	1.64	1.72	1.82	1.91	1.97	2.03	2.17	2.22	2.28	2.49

900 yds Average V Count – Average Conditions

V Bull Ø							ICFRA										Consid-ered	NRA Prop'd			
Inches	7.68	8.07	8.46	8.86	9.25	9.65	10.04	10.43	11.00	11.22	11.50	12.01	12.40	12.80	13.20	13.58	13.80	14.40	14.76	15.16	15.55
mm	195.00	205.00	215.00	225.00	235.00	245.00	255.00	265.00	279.40	285.00	292.10	305.00	315.00	325.00	335.28	345.00	350.52	365.76	375.00	385.00	395.00
MoA	0.847	0.889	0.931	0.973	1.014	1.056	1.098	1.140	1.200	1.223	1.253	1.307	1.349	1.390	1.433	1.474	1.497	1.561	1.599	1.641	1.683
Skill Level																					
1	2.04	2.24	2.40	2.56	2.82	2.99	3.15	3.37	3.69	3.79	3.90	4.16	4.30	4.50	4.65	4.84	4.91	5.18	5.38	5.55	5.69
2	1.85	2.07	2.20	2.33	2.60	2.72	2.87	3.05	3.33	3.40	3.48	3.72	3.85	4.02	4.17	4.36	4.43	4.69	4.83	4.98	5.09
3	1.64	1.74	1.95	2.18	2.28	2.46	2.56	2.69	3.01	3.11	3.27	3.38	3.52	3.76	3.88	4.02	4.13	4.29	4.47	4.60	4.67
4	1.61	1.71	1.92	2.14	2.25	2.41	2.51	2.62	2.89	3.00	3.12	3.22	3.33	3.55	3.69	3.82	3.92	4.06	4.23	4.37	4.46
5	1.56	1.69	1.89	2.10	2.24	2.37	2.47	2.57	2.76	2.89	2.97	3.07	3.14	3.31	3.50	3.60	3.69	3.82	3.98	4.11	4.24
6	1.52	1.68	1.87	2.08	2.23	2.33	2.44	2.53	2.67	2.81	2.85	2.95	3.00	3.14	3.35	3.44	3.53	3.64	3.79	3.92	4.07
7	1.15	1.31	1.40	1.52	1.62	1.78	1.88	2.02	2.18	2.22	2.27	2.45	2.53	2.74	2.92	3.05	3.11	3.31	3.41	3.53	3.63
8	1.04	1.18	1.26	1.36	1.45	1.61	1.70	1.82	1.96	1.99	2.07	2.22	2.32	2.49	2.64	2.77	2.81	3.03	3.16	3.26	3.40
9	0.90	1.00	1.08	1.15	1.23	1.37	1.46	1.56	1.66	1.69	1.81	1.92	2.04	2.16	2.27	2.39	2.43	2.66	2.82	2.92	3.08
10	0.65	0.70	0.76	0.78	0.86	0.96	1.04	1.09	1.15	1.17	1.33	1.38	1.51	1.56	1.62	1.72	1.75	1.98	2.16	2.24	2.42

900 yds Average V Count – Difficult Conditions

V Bull Ø							ICFRA										Consid-ered	NRA Prop'd			
Inches	7.68	8.07	8.46	8.86	9.25	9.65	10.04	10.43	11.00	11.22	11.50	12.01	12.40	12.80	13.20	13.58	13.80	14.40	14.76	15.16	15.55
mm	195.00	205.00	215.00	225.00	235.00	245.00	255.00	265.00	279.40	285.00	292.10	305.00	315.00	325.00	335.28	345.00	350.52	365.76	375.00	385.00	395.00
MoA	0.847	0.889	0.931	0.973	1.014	1.056	1.098	1.140	1.200	1.223	1.253	1.307	1.349	1.390	1.433	1.474	1.497	1.561	1.599	1.641	1.683
Skill Level																					
1	1.55	1.78	2.01	2.21	2.42	2.56	2.76	2.87	3.04	3.17	3.31	3.59	3.69	3.90	4.05	4.28	4.34	4.58	4.74	4.83	5.00
2	1.41	1.57	1.72	1.82	2.00	2.12	2.28	2.45	2.63	2.67	2.73	2.93	3.16	3.31	3.48	3.62	3.76	4.05	4.19	4.37	4.43
3	1.35	1.52	1.60	1.69	1.91	2.03	2.15	2.32	2.41	2.42	2.46	2.64	2.92	3.04	3.26	3.33	3.54	3.85	3.95	4.12	4.17
4	1.29	1.44	1.53	1.63	1.80	1.92	2.03	2.20	2.30	2.31	2.35	2.53	2.77	2.89	3.09	3.18	3.35	3.62	3.72	3.88	3.95
5	1.22	1.35	1.45	1.54	1.67	1.78	1.88	2.06	2.16	2.17	2.21	2.39	2.57	2.69	2.88	2.99	3.11	3.32	3.42	3.58	3.66
6	1.13	1.24	1.35	1.44	1.53	1.62	1.72	1.90	1.99	2.02	2.05	2.23	2.35	2.47	2.63	2.77	2.83	2.98	3.08	3.23	3.34
7	1.07	1.17	1.29	1.38	1.44	1.51	1.61	1.75	1.87	1.89	1.93	2.08	2.15	2.26	2.39	2.52	2.56	2.65	2.75	2.88	2.97
8	1.07	1.17	1.29	1.38	1.44	1.51	1.61	1.75	1.87	1.89	1.93	2.09	2.16	2.27	2.40	2.53	2.57	2.67	2.77	2.90	2.99
9	1.00	1.14	1.27	1.34	1.40	1.41	1.54	1.55	1.74	1.74	1.81	1.88	1.88	1.95	2.03	2.10	2.16	2.17	2.30	2.37	2.37
10	0.76	0.86	0.96	1.01	1.06	1.06	1.17	1.17	1.32	1.32	1.37	1.42	1.42	1.47	1.52	1.57	1.62	1.62	1.72	1.77	1.77

1000 yds Average V Count – All Conditions

V Bull Ø							ICFRA										Consid-ered	NRA Prop'd			
Inches	7.68	8.07	8.46	8.86	9.25	9.65	10.04	10.43	11.00	11.22	11.50	12.01	12.40	12.80	13.20	13.58	13.80	14.40	14.76	15.16	15.55
mm	195.00	205.00	215.00	225.00	235.00	245.00	255.00	265.00	279.40	285.00	292.10	305.00	315.00	325.00	335.28	345.00	350.52	365.76	375.00	385.00	395.00
MoA	0.763	0.800	0.838	0.875	0.913	0.951	0.988	1.026	1.080	1.101	1.128	1.176	1.214	1.251	1.290	1.326	1.347	1.405	1.439	1.477	1.514
Skill Level																					
1	1.35	1.46	1.60	1.73	1.88	2.02	2.11	2.24	2.44	2.53	2.63	2.86	3.00	3.12	3.28	3.43	3.49	3.78	3.93	4.07	4.22
2	1.06	1.18	1.29	1.45	1.61	1.73	1.83	1.97	2.10	2.21	2.27	2.45	2.58	2.72	2.90	3.03	3.10	3.30	3.45	3.65	3.84
3	0.95	1.03	1.14	1.30	1.43	1.58	1.67	1.81	1.95	2.02	2.09	2.27	2.38	2.48	2.64	2.80	2.87	3.08	3.19	3.40	3.57
4	0.96	1.05	1.15	1.32	1.45	1.60	1.69	1.82	1.96	2.04	2.11	2.29	2.40	2.51	2.66	2.82	2.89	3.10	3.22	3.43	3.60
5	0.86	0.91	1.01	1.13	1.24	1.38	1.47	1.61	1.75	1.80	1.86	2.01	2.11	2.19	2.33	2.51	2.57	2.76	2.86	3.05	3.17
6	0.85	0.90	0.98	1.04	1.15	1.23	1.33	1.47	1.62	1.64	1.69	1.81	1.90	1.99	2.13	2.30	2.36	2.48	2.61	2.75	2.82
7	0.73	0.80	0.88	0.99	1.07	1.12	1.22	1.33	1.47	1.50	1.54	1.67	1.81	1.91	2.01	2.11	2.15	2.30	2.40	2.50	2.60
8	0.63	0.70	0.78	0.90	0.97	1.01	1.10	1.19	1.32	1.35	1.39	1.52	1.67	1.76	1.84	1.89	1.94	2.08	2.16	2.23	2.35
9	0.55	0.60	0.68	0.76	0.84	0.90	0.98	1.06	1.17	1.19	1.24	1.36	1.48	1.54	1.62	1.66	1.71	1.82	1.91	1.95	2.05
10	0.45	0.47	0.54	0.58	0.67	0.76	0.82	0.90	0.98	0.99	1.05	1.14	1.23	1.25	1.32	1.36	1.42	1.49	1.58	1.60	1.68

1000 yds Average V Count – Easy Conditions

V Bull Ø							ICFRA										Consid-ered	NRA Prop'd			
Inches	7.68	8.07	8.46	8.86	9.25	9.65	10.04	10.43	11.00	11.22	11.50	12.01	12.40	12.80	13.20	13.58	13.80	14.40	14.76	15.16	15.55
mm	195.00	205.00	215.00	225.00	235.00	245.00	255.00	265.00	279.40	285.00	292.10	305.00	315.00	325.00	335.28	345.00	350.52	365.76	375.00	385.00	395.00
MoA	0.763	0.800	0.838	0.875	0.913	0.951	0.988	1.026	1.080	1.101	1.128	1.176	1.214	1.251	1.290	1.326	1.347	1.405	1.439	1.477	1.514
Skill Level																					
1	1.57	1.74	1.88	2.04	2.28	2.44	2.55	2.71	2.90	2.99	3.15	3.40	3.64	3.79	3.97	4.16	4.29	4.50	4.62	4.81	4.95
2	1.39	1.53	1.70	1.81	2.01	2.22	2.27	2.39	2.57	2.68	2.81	3.07	3.19	3.29	3.48	3.69	3.76	4.11	4.25	4.39	4.61
3	1.22	1.35	1.48	1.64	1.85	2.01	2.09	2.22	2.37	2.48	2.62	2.86	2.94	3.02	3.22	3.39	3.47	3.77	3.93	4.09	4.32
4	1.11	1.25	1.39	1.67	1.84	1.94	2.02	2.15	2.27	2.39	2.49	2.66	2.80	2.97	3.20	3.27	3.32	3.50	3.62	3.80	4.05
5	1.02	1.15	1.29	1.56	1.72	1.84	1.93	2.05	2.17	2.29	2.39	2.55	2.67	2.82	3.03	3.13	3.19	3.36	3.46	3.65	3.89
6	0.72	0.77	0.88	1.08	1.26	1.43	1.57	1.67	1.80	1.90	2.00	2.15	2.18	2.21	2.37	2.58	2.71	2.86	2.91	3.13	3.29
7	0.77	0.81	0.90	1.05	1.19	1.32	1.45	1.55	1.71	1.78	1.86	2.00	2.05	2.08	2.24	2.45	2.54	2.67	2.75	2.92	3.06
8	0.85	0.88	0.95	1.06	1.16	1.24	1.34	1.45	1.63	1.68	1.74	1.86	1.94	1.97	2.16	2.34	2.38	2.51	2.61	2.72	2.84
9	0.64	0.71	0.79	0.84	0.93	1.01	1.12	1.19	1.34	1.37	1.41	1.53	1.71	1.80	1.87	1.94	1.96	2.01	2.09	2.09	2.23
10	0.55	0.55	0.68	0.69	0.78	0.91	0.96	1.05	1.14	1.14	1.19	1.23	1.33	1.33	1.37	1.42	1.47	1.47	1.56	1.56	1.60

1000 yds Average V Count – Average Conditions

V Bull Ø							ICFRA										Consid-ered	NRA Prop'd			
Inches	7.68	8.07	8.46	8.86	9.25	9.65	10.04	10.43	11.00	11.22	11.50	12.01	12.40	12.80	13.20	13.58	13.80	14.40	14.76	15.16	15.55
mm	195.00	205.00	215.00	225.00	235.00	245.00	255.00	265.00	279.40	285.00	292.10	305.00	315.00	325.00	335.28	345.00	350.52	365.76	375.00	385.00	395.00
MoA	0.763	0.800	0.838	0.875	0.913	0.951	0.988	1.026	1.080	1.101	1.128	1.176	1.214	1.251	1.290	1.326	1.347	1.405	1.439	1.477	1.514
Skill Level																					
1	1.56	1.69	1.89	2.10	2.24	2.36	2.47	2.57	2.76	2.89	2.96	3.07	3.14	3.31	3.49	3.60	3.69	3.82	3.98	4.11	4.23
2	1.17	1.33	1.42	1.55	1.64	1.81	1.90	2.05	2.21	2.25	2.30	2.48	2.56	2.78	2.96	3.09	3.15	3.34	3.45	3.56	3.67
3	1.08	1.22	1.30	1.41	1.50	1.66	1.75	1.88	2.02	2.06	2.13	2.29	2.38	2.56	2.72	2.85	2.90	3.11	3.23	3.34	3.47
4	1.07	1.20	1.29	1.39	1.49	1.64	1.73	1.86	2.00	2.03	2.11	2.26	2.36	2.54	2.69	2.82	2.87	3.08	3.21	3.31	3.44
5	0.94	1.05	1.12	1.20	1.29	1.43	1.52	1.62	1.73	1.77	1.88	2.00	2.11	2.25	2.36	2.49	2.53	2.76	2.91	3.01	3.16
6	0.84	0.92	0.99	1.04	1.13	1.26	1.35	1.43	1.52	1.55	1.69	1.78	1.90	2.00	2.09	2.21	2.25	2.49	2.67	2.76	2.93
7	0.79	0.86	0.93	0.97	1.06	1.18	1.27	1.34	1.42	1.45	1.60	1.67	1.81	1.89	1.97	2.09	2.12	2.37	2.55	2.64	2.82
8	0.69	0.74	0.79	0.82	0.90	1.01	1.10	1.15	1.21	1.23	1.40	1.45	1.59	1.64	1.70	1.81	1.84	2.08	2.27	2.36	2.55
9	0.60	0.64	0.69	0.72	0.79	0.88	0.95	1.00	1.05	1.07	1.22	1.26	1.38	1.43	1.48	1.57	1.60	1.81	1.98	2.05	2.22
10	0.45	0.49	0.52	0.54	0.59	0.67	0.72	0.76	0.79	0.81	0.92	0.96	1.05	1.08	1.12	1.19	1.21	1.37	1.50	1.55	1.68

1000 yds Average V Count – Difficult Conditions

V Bull Ø							ICFRA										Consid-ered	NRA Prop'd			
Inches	7.68	8.07	8.46	8.86	9.25	9.65	10.04	10.43	11.00	11.22	11.50	12.01	12.40	12.80	13.20	13.58	13.80	14.40	14.76	15.16	15.55
mm	195.00	205.00	215.00	225.00	235.00	245.00	255.00	265.00	279.40	285.00	292.10	305.00	315.00	325.00	335.28	345.00	350.52	365.76	375.00	385.00	395.00
MoA	0.763	0.800	0.838	0.875	0.913	0.951	0.988	1.026	1.080	1.101	1.128	1.176	1.214	1.251	1.290	1.326	1.347	1.405	1.439	1.477	1.514
Skill Level																					
1	1.14	1.24	1.35	1.44	1.53	1.63	1.72	1.90	1.99	2.02	2.05	2.23	2.36	2.48	2.64	2.78	2.84	2.99	3.09	3.24	3.35
2	1.08	1.18	1.30	1.39	1.45	1.53	1.62	1.78	1.88	1.91	1.95	2.11	2.19	2.30	2.44	2.58	2.62	2.72	2.82	2.96	3.06
3	1.05	1.16	1.29	1.37	1.43	1.49	1.59	1.70	1.84	1.85	1.90	2.03	2.09	2.19	2.30	2.42	2.47	2.54	2.65	2.76	2.83
4	1.04	1.16	1.28	1.36	1.43	1.47	1.58	1.67	1.82	1.83	1.88	2.00	2.05	2.14	2.25	2.36	2.40	2.46	2.58	2.68	2.74
5	1.02	1.14	1.27	1.35	1.41	1.43	1.56	1.60	1.77	1.78	1.84	1.93	1.95	2.03	2.12	2.20	2.26	2.29	2.41	2.50	2.52
6	1.00	1.13	1.27	1.33	1.40	1.40	1.54	1.54	1.74	1.74	1.80	1.87	1.87	1.94	2.01	2.08	2.15	2.15	2.28	2.35	2.35
7	0.97	1.10	1.23	1.30	1.36	1.36	1.49	1.49	1.69	1.69	1.75	1.82	1.82	1.88	1.95	2.01	2.08	2.08	2.21	2.27	2.27
8	0.78	0.88	0.98	1.04	1.09	1.09	1.19	1.19	1.35	1.35	1.40	1.45	1.45	1.50	1.55	1.61	1.66	1.66	1.76	1.81	1.81
9	0.68	0.77	0.86	0.91	0.95	0.95	1.04	1.04	1.18	1.18	1.22	1.27	1.27	1.32	1.36	1.41	1.45	1.45	1.54	1.59	1.59
10	0.54	0.61	0.69	0.72	0.76	0.76	0.83	0.83	0.94	0.94	0.98	1.01	1.01	1.05	1.08	1.12	1.16	1.16	1.23	1.26	1.26

Annex I. UK Average Percentage 50.10s at Different Target Dimensions

300 yds Average Percentage 50.10s – All Conditions

V Bull Ø						ICFRA						Prop'd						NRA			
Inches	2.28	2.36	2.40	2.46	2.52	2.56	2.64	2.70	2.76	2.83	2.87	2.95	2.99	3.05	3.11	3.17	3.23	3.30	3.35	3.41	3.46
mm	58.00	60.00	61.00	62.50	64.00	65.00	67.00	68.50	70.00	72.00	73.00	75.00	76.00	77.50	79.00	80.50	82.00	83.82	85.00	86.50	88.00
MoA	0.825	0.850	0.862	0.881	0.900	0.913	0.938	0.956	0.975	1.000	1.013	1.038	1.050	1.069	1.088	1.107	1.126	1.148	1.163	1.182	1.201
Skill Level																					
Overall	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.02%	0.02%	0.03%	0.03%	0.04%	0.05%	0.07%	0.09%	0.11%	0.14%	0.17%	0.21%
1	0.02%	0.02%	0.03%	0.04%	0.06%	0.07%	0.10%	0.13%	0.17%	0.23%	0.28%	0.38%	0.44%	0.55%	0.68%	0.83%	1.01%	1.28%	1.48%	1.76%	2.09%
2	0.00%	0.01%	0.01%	0.01%	0.02%	0.02%	0.03%	0.04%	0.06%	0.08%	0.10%	0.13%	0.16%	0.20%	0.25%	0.31%	0.39%	0.50%	0.58%	0.71%	0.86%
3	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.02%	0.02%	0.03%	0.04%	0.05%	0.07%	0.08%	0.11%	0.14%	0.17%	0.22%	0.28%	0.33%	0.41%	0.50%
4	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.02%	0.02%	0.03%	0.04%	0.05%	0.06%	0.07%	0.09%	0.12%	0.16%	0.19%	0.23%	0.28%
5	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.01%	0.02%	0.03%	0.03%	0.04%	0.05%	0.06%	0.08%	0.11%	0.13%	0.16%	0.20%
6	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.01%	0.02%	0.02%	0.03%	0.04%	0.05%	0.06%	0.08%	0.09%	0.12%
7	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.01%	0.02%	0.02%	0.03%	0.04%	0.05%	0.06%
8	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.01%	0.02%	0.02%	0.02%
9	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%
10	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

300 yds Average Percentage 50.10s – Easy Conditions

V Bull Ø						ICFRA						Prop'd						NRA			
Inches	2.28	2.36	2.40	2.46	2.52	2.56	2.64	2.70	2.76	2.83	2.87	2.95	2.99	3.05	3.11	3.17	3.23	3.30	3.35	3.41	3.46
mm	58.00	60.00	61.00	62.50	64.00	65.00	67.00	68.50	70.00	72.00	73.00	75.00	76.00	77.50	79.00	80.50	82.00	83.82	85.00	86.50	88.00
MoA	0.825	0.850	0.862	0.881	0.900	0.913	0.938	0.956	0.975	1.000	1.013	1.038	1.050	1.069	1.088	1.107	1.126	1.148	1.163	1.182	1.201
Skill Level																					
Overall	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.02%	0.02%	0.03%	0.04%	0.05%	0.06%	0.08%	0.11%	0.13%	0.17%	0.21%	0.25%	0.31%
1	0.04%	0.05%	0.07%	0.09%	0.12%	0.15%	0.21%	0.27%	0.35%	0.48%	0.56%	0.75%	0.87%	1.07%	1.31%	1.59%	1.91%	2.37%	2.71%	3.19%	3.74%
2	0.01%	0.01%	0.01%	0.02%	0.03%	0.03%	0.05%	0.06%	0.08%	0.12%	0.14%	0.20%	0.23%	0.29%	0.37%	0.45%	0.56%	0.71%	0.83%	1.01%	1.21%
3	0.00%	0.01%	0.01%	0.01%	0.01%	0.02%	0.02%	0.03%	0.04%	0.06%	0.07%	0.11%	0.12%	0.16%	0.20%	0.25%	0.31%	0.40%	0.47%	0.58%	0.70%
4	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.01%	0.02%	0.02%	0.04%	0.04%	0.06%	0.07%	0.09%	0.12%	0.15%	0.18%	0.24%	0.28%	0.35%	0.42%
5	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.01%	0.02%	0.03%	0.04%	0.04%	0.06%	0.07%	0.09%	0.12%	0.16%	0.19%	0.23%	0.28%
6	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.02%	0.02%	0.03%	0.04%	0.05%	0.06%	0.08%	0.10%	0.12%	0.15%	0.18%
7	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.02%	0.02%	0.03%	0.03%	0.04%	0.06%	0.07%	0.09%	0.11%
8	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.01%	0.01%	0.02%	0.03%	0.03%	0.04%	0.05%
9	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%
10	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

300 yds Average Percentage 50.10s – Average Conditions

V Bull Ø						ICFRA						Prop'd						NRA			
Inches	2.28	2.36	2.40	2.46	2.52	2.56	2.64	2.70	2.76	2.83	2.87	2.95	2.99	3.05	3.11	3.17	3.23	3.30	3.35	3.41	3.46
mm	58.00	60.00	61.00	62.50	64.00	65.00	67.00	68.50	70.00	72.00	73.00	75.00	76.00	77.50	79.00	80.50	82.00	83.82	85.00	86.50	88.00
MoA	0.825	0.850	0.862	0.881	0.900	0.913	0.938	0.956	0.975	1.000	1.013	1.038	1.050	1.069	1.088	1.107	1.126	1.148	1.163	1.182	1.201
Skill Level																					
Overall	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.02%	0.02%	0.03%	0.03%	0.04%	0.05%	0.07%	0.08%	0.11%	0.13%	0.16%	0.20%
1	0.01%	0.02%	0.02%	0.03%	0.05%	0.05%	0.08%	0.11%	0.14%	0.19%	0.23%	0.32%	0.37%	0.46%	0.57%	0.70%	0.86%	1.09%	1.26%	1.51%	1.80%
2	0.00%	0.01%	0.01%	0.01%	0.02%	0.02%	0.03%	0.04%	0.06%	0.08%	0.10%	0.14%	0.16%	0.20%	0.25%	0.32%	0.39%	0.51%	0.59%	0.72%	0.87%
3	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.01%	0.02%	0.03%	0.04%	0.05%	0.06%	0.08%	0.10%	0.12%	0.16%	0.20%	0.26%	0.30%	0.37%	0.45%
4	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.01%	0.02%	0.03%	0.03%	0.05%	0.05%	0.07%	0.09%	0.11%	0.14%	0.19%	0.22%	0.27%	0.34%
5	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.02%	0.02%	0.03%	0.03%	0.04%	0.05%	0.07%	0.09%	0.11%	0.13%	0.17%	0.21%
6	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.01%	0.02%	0.02%	0.03%	0.04%	0.05%	0.06%	0.08%	0.10%	0.12%
7	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.01%	0.02%	0.02%	0.03%	0.04%	0.05%	0.06%
8	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.01%	0.02%	0.02%
9	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
10	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

300 yds Average Percentage 50.10s – Difficult Conditions

V Bull Ø						ICFRA						Prop'd						NRA			
Inches	2.28	2.36	2.40	2.46	2.52	2.56	2.64	2.70	2.76	2.83	2.87	2.95	2.99	3.05	3.11	3.17	3.23	3.30	3.35	3.41	3.46
mm	58.00	60.00	61.00	62.50	64.00	65.00	67.00	68.50	70.00	72.00	73.00	75.00	76.00	77.50	79.00	80.50	82.00	83.82	85.00	86.50	88.00
MoA	0.825	0.850	0.862	0.881	0.900	0.913	0.938	0.956	0.975	1.000	1.013	1.038	1.050	1.069	1.088	1.107	1.126	1.148	1.163	1.182	1.201
Skill Level																					
Overall	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.01%	0.02%	0.02%	0.03%	0.04%	0.05%	0.06%	0.08%	0.10%	0.12%
1	0.01%	0.01%	0.02%	0.02%	0.03%	0.04%	0.05%	0.07%	0.09%	0.13%	0.16%	0.22%	0.26%	0.32%	0.40%	0.50%	0.61%	0.78%	0.91%	1.10%	1.31%
2	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.02%	0.02%	0.03%	0.04%	0.05%	0.07%	0.09%	0.11%	0.14%	0.18%	0.22%	0.29%	0.34%	0.42%	0.51%
3	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.02%	0.02%	0.03%	0.04%	0.05%	0.06%	0.08%	0.10%	0.13%	0.16%	0.21%	0.25%	0.30%	0.37%
4	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.01%	0.02%	0.02%	0.03%	0.03%	0.05%	0.05%	0.07%	0.09%
5	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.01%	0.02%	0.02%	0.03%	0.04%	0.05%	0.06%	0.08%	0.10%
6	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.01%	0.02%	0.02%	0.03%	0.03%	0.04%	0.05%
7	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.01%
8	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%
9	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%
10	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

500 yds Average Percentage 50.10s – All Conditions

V Bull Ø							ICFRA		Prop'd									NRA			
Inches	4.13	4.33	4.43	4.53	4.72	4.92	5.12	5.31	5.43	5.51	5.61	5.71	5.81	5.91	6.00	6.10	6.20	6.30	6.40	6.50	6.59
mm	105.00	110.00	112.50	115.00	120.00	125.00	130.00	135.00	138.00	140.00	142.50	145.00	147.50	150.00	152.50	155.00	157.50	160.02	162.50	165.00	167.50
MoA	0.848	0.886	0.905	0.924	0.961	0.999	1.036	1.074	1.096	1.112	1.130	1.149	1.168	1.187	1.205	1.224	1.243	1.262	1.281	1.299	1.318
Skill Level																					
Overall	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.01%	0.02%	0.02%	0.03%	0.04%	0.05%	0.06%	0.07%	0.09%	0.11%	0.13%
1	0.00%	0.00%	0.01%	0.01%	0.01%	0.02%	0.04%	0.07%	0.09%	0.11%	0.14%	0.18%	0.22%	0.27%	0.33%	0.40%	0.49%	0.59%	0.70%	0.83%	0.99%
2	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.02%	0.03%	0.03%	0.04%	0.05%	0.07%	0.08%	0.10%	0.13%	0.16%	0.19%	0.23%	0.28%	0.34%
3	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.02%	0.02%	0.03%	0.03%	0.04%	0.05%	0.07%	0.08%	0.10%	0.13%	0.16%	0.19%	0.23%
4	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.02%	0.02%	0.02%	0.03%	0.04%	0.05%	0.06%	0.08%	0.09%	0.11%	0.14%
5	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.01%	0.02%	0.02%	0.02%	0.03%	0.04%	0.05%	0.06%	0.07%
6	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.01%	0.02%	0.02%	0.02%	0.03%	0.04%
7	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.01%	0.01%	0.02%	0.02%	0.03%	0.03%
8	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.01%	0.01%
9	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%
10	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

500 yds Average Percentage 50.10s – Easy Conditions

V Bull Ø							ICFRA		Prop'd									NRA			
Inches	4.13	4.33	4.43	4.53	4.72	4.92	5.12	5.31	5.43	5.51	5.61	5.71	5.81	5.91	6.00	6.10	6.20	6.30	6.40	6.50	6.59
mm	105.00	110.00	112.50	115.00	120.00	125.00	130.00	135.00	138.00	140.00	142.50	145.00	147.50	150.00	152.50	155.00	157.50	160.02	162.50	165.00	167.50
MoA	0.848	0.886	0.905	0.924	0.961	0.999	1.036	1.074	1.096	1.112	1.130	1.149	1.168	1.187	1.205	1.224	1.243	1.262	1.281	1.299	1.318
Skill Level																					
Overall	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.01%	0.02%	0.02%	0.03%	0.04%	0.05%	0.06%	0.07%	0.09%	0.11%	0.13%
1	0.00%	0.00%	0.01%	0.01%	0.01%	0.02%	0.04%	0.07%	0.09%	0.11%	0.14%	0.18%	0.22%	0.27%	0.33%	0.40%	0.49%	0.59%	0.70%	0.83%	0.99%
2	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.02%	0.03%	0.03%	0.04%	0.05%	0.07%	0.08%	0.10%	0.13%	0.16%	0.19%	0.23%	0.28%	0.34%
3	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.02%	0.02%	0.03%	0.03%	0.04%	0.05%	0.07%	0.08%	0.10%	0.13%	0.16%	0.19%	0.23%
4	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.02%	0.02%	0.02%	0.03%	0.04%	0.05%	0.06%	0.08%	0.09%	0.11%	0.14%
5	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.01%	0.02%	0.02%	0.02%	0.03%	0.04%	0.05%	0.06%	0.07%
6	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.01%	0.02%	0.02%	0.02%	0.03%	0.04%
7	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.01%	0.01%	0.02%	0.02%	0.03%	0.03%
8	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.01%	0.01%
9	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%
10	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

500 yds Average Percentage 50.10s – Average Conditions

V Bull Ø							ICFRA		Prop'd									NRA			
Inches	4.13	4.33	4.43	4.53	4.72	4.92	5.12	5.31	5.43	5.51	5.61	5.71	5.81	5.91	6.00	6.10	6.20	6.30	6.40	6.50	6.59
mm	105.00	110.00	112.50	115.00	120.00	125.00	130.00	135.00	138.00	140.00	142.50	145.00	147.50	150.00	152.50	155.00	157.50	160.02	162.50	165.00	167.50
MoA	0.848	0.886	0.905	0.924	0.961	0.999	1.036	1.074	1.096	1.112	1.130	1.149	1.168	1.187	1.205	1.224	1.243	1.262	1.281	1.299	1.318
Skill Level																					
Overall	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.01%	0.02%	0.02%	0.03%	0.04%	0.04%	0.05%	0.07%	0.08%	0.10%
1	0.00%	0.00%	0.00%	0.01%	0.01%	0.02%	0.03%	0.05%	0.07%	0.08%	0.10%	0.13%	0.16%	0.20%	0.24%	0.30%	0.36%	0.44%	0.53%	0.63%	0.75%
2	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.02%	0.02%	0.03%	0.04%	0.04%	0.06%	0.07%	0.09%	0.11%	0.14%	0.17%	0.20%	0.24%	0.29%
3	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.02%	0.02%	0.03%	0.03%	0.04%	0.05%	0.07%	0.08%	0.10%	0.12%	0.15%
4	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.01%	0.01%	0.02%	0.02%	0.03%	0.03%	0.04%	0.05%	0.07%	0.08%
5	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.01%	0.01%	0.02%	0.02%	0.03%	0.04%	0.05%	0.06%
6	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.01%	0.02%	0.02%	0.02%
7	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.01%	0.01%	0.02%	0.02%
8	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
9	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%
10	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

500 yds Average Percentage 50.10s – Difficult Conditions

V Bull Ø							ICFRA		Prop'd									NRA			
Inches	4.13	4.33	4.43	4.53	4.72	4.92	5.12	5.31	5.43	5.51	5.61	5.71	5.81	5.91	6.00	6.10	6.20	6.30	6.40	6.50	6.59
mm	105.00	110.00	112.50	115.00	120.00	125.00	130.00	135.00	138.00	140.00	142.50	145.00	147.50	150.00	152.50	155.00	157.50	160.02	162.50	165.00	167.50
MoA	0.848	0.886	0.905	0.924	0.961	0.999	1.036	1.074	1.096	1.112	1.130	1.149	1.168	1.187	1.205	1.224	1.243	1.262	1.281	1.299	1.318
Skill Level																					
Overall	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.01%	0.02%	0.02%	0.03%	0.03%	0.04%
1	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.02%	0.02%	0.03%	0.04%	0.05%	0.06%	0.08%	0.09%	0.12%	0.14%	0.17%	0.21%	0.25%
2	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.01%	0.01%	0.02%	0.02%	0.03%	0.04%	0.05%	0.06%	0.07%	0.08%
3	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.01%	0.02%	0.02%	0.03%	0.03%	0.04%	0.05%
4	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.01%	0.01%	0.02%	0.02%	0.03%	0.04%	0.04%	0.05%	0.07%
5	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%
6	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.01%	0.01%	0.02%
7	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%
8	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.01%	0.01%
9	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
10	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

600 yds Average Percentage 50.10s – All Conditions

V Bull Ø					ICFRA							Prop'd						NRA			
Inches	5.12	5.28	5.43	5.59	5.71	5.91	6.06	6.22	6.38	6.54	6.69	6.85	7.01	7.17	7.32	7.48	7.64	7.80	7.95	8.11	8.27
mm	130.00	134.00	138.00	142.00	145.00	150.00	154.00	158.00	162.00	166.00	170.00	174.00	178.00	182.00	186.00	190.00	194.00	198.12	202.00	206.00	210.00
MoA	0.864	0.889	0.914	0.939	0.958	0.989	1.014	1.039	1.064	1.089	1.114	1.139	1.164	1.189	1.214	1.240	1.265	1.290	1.315	1.340	1.365
Skill Level																					
Overall	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.01%	0.02%	0.03%	0.03%	0.05%	0.06%	0.08%
1	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.02%	0.03%	0.04%	0.06%	0.08%	0.10%	0.14%	0.18%	0.23%	0.30%	0.39%	0.49%	0.62%
2	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.02%	0.03%	0.04%	0.05%	0.06%	0.09%	0.11%	0.15%	0.19%	0.24%
3	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.02%	0.02%	0.03%	0.04%	0.06%	0.07%	0.10%	0.13%	0.16%	0.21%
4	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.02%	0.02%	0.03%	0.04%	0.06%	0.08%	0.10%	0.13%
5	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.01%	0.02%	0.02%	0.03%	0.04%	0.06%
6	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.02%	0.02%	0.03%	0.04%
7	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.01%	0.02%	0.02%
8	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%
9	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%
10	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

600 yds Average Percentage 50.10s – Easy Conditions

V Bull Ø					ICFRA							Prop'd						NRA			
Inches	5.12	5.28	5.43	5.59	5.71	5.91	6.06	6.22	6.38	6.54	6.69	6.85	7.01	7.17	7.32	7.48	7.64	7.80	7.95	8.11	8.27
mm	130.00	134.00	138.00	142.00	145.00	150.00	154.00	158.00	162.00	166.00	170.00	174.00	178.00	182.00	186.00	190.00	194.00	198.12	202.00	206.00	210.00
MoA	0.864	0.889	0.914	0.939	0.958	0.989	1.014	1.039	1.064	1.089	1.114	1.139	1.164	1.189	1.214	1.240	1.265	1.290	1.315	1.340	1.365
Skill Level																					
Overall	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.02%	0.02%	0.03%	0.04%	0.05%	0.07%	0.09%	0.12%	0.15%
1	0.00%	0.01%	0.01%	0.01%	0.02%	0.03%	0.04%	0.06%	0.08%	0.11%	0.15%	0.20%	0.26%	0.35%	0.45%	0.58%	0.74%	0.94%	1.17%	1.45%	1.78%
2	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.02%	0.02%	0.03%	0.04%	0.06%	0.08%	0.11%	0.14%	0.18%	0.24%	0.31%	0.39%	0.49%
3	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.02%	0.03%	0.04%	0.05%	0.07%	0.09%	0.12%	0.16%	0.21%	0.27%	0.34%	0.43%
4	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.02%	0.02%	0.03%	0.04%	0.06%	0.08%	0.10%	0.13%	0.17%	0.22%	0.28%
5	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.02%	0.02%	0.03%	0.04%	0.06%	0.07%
6	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.02%	0.03%	0.03%	0.05%	0.06%	0.08%	0.10%
7	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.01%	0.02%	0.02%	0.03%	0.04%
8	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.01%	0.02%
9	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
10	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

600 yds Average Percentage 50.10s – Average Conditions

V Bull Ø					ICFRA							Prop'd						NRA			
Inches	5.12	5.28	5.43	5.59	5.71	5.91	6.06	6.22	6.38	6.54	6.69	6.85	7.01	7.17	7.32	7.48	7.64	7.80	7.95	8.11	8.27
mm	130.00	134.00	138.00	142.00	145.00	150.00	154.00	158.00	162.00	166.00	170.00	174.00	178.00	182.00	186.00	190.00	194.00	198.12	202.00	206.00	210.00
MoA	0.864	0.889	0.914	0.939	0.958	0.989	1.014	1.039	1.064	1.089	1.114	1.139	1.164	1.189	1.214	1.240	1.265	1.290	1.315	1.340	1.365
Skill Level																					
Overall	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.01%	0.02%	0.03%	0.03%	0.05%	0.06%	0.08%
1	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.02%	0.03%	0.04%	0.05%	0.07%	0.09%	0.12%	0.16%	0.21%	0.27%	0.35%	0.44%	0.56%
2	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.02%	0.02%	0.03%	0.04%	0.06%	0.08%	0.11%	0.14%	0.18%	0.23%
3	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.02%	0.03%	0.04%	0.05%	0.07%	0.09%	0.12%	0.15%	0.20%	0.25%
4	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.02%	0.02%	0.03%	0.05%	0.06%	0.08%	0.10%	0.13%
5	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.02%	0.02%	0.03%	0.04%	0.05%	0.06%
6	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.01%	0.02%	0.02%	0.03%
7	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.02%	0.02%	0.03%
8	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%
9	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%
10	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

600 yds Average Percentage 50.10s – Difficult Conditions

V Bull Ø					ICFRA							Prop'd						NRA			
Inches	5.12	5.28	5.43	5.59	5.71	5.91	6.06	6.22	6.38	6.54	6.69	6.85	7.01	7.17	7.32	7.48	7.64	7.80	7.95	8.11	8.27
mm	130.00	134.00	138.00	142.00	145.00	150.00	154.00	158.00	162.00	166.00	170.00	174.00	178.00	182.00	186.00	190.00	194.00	198.12	202.00	206.00	210.00
MoA	0.864	0.889	0.914	0.939	0.958	0.989	1.014	1.039	1.064	1.089	1.114	1.139	1.164	1.189	1.214	1.240	1.265	1.290	1.315	1.340	1.365
Skill Level																					
Overall	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.02%	0.02%	0.03%
1	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.01%	0.02%	0.03%	0.04%	0.05%	0.07%	0.09%	0.12%	0.15%	0.19%
2	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.01%	0.02%	0.03%	0.04%	0.05%	0.06%	0.08%	0.11%
3	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.02%	0.02%	0.03%
4	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.01%	0.02%	0.02%	0.03%
5	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.01%	0.02%	0.03%
6	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.02%
7	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%
8	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.01%
9	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
10	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

900 yds Average Percentage 50.10s – All Conditions

V Bull Ø							ICFRA										Consid-ered	NRA Prop'd			
Inches	7.68	8.07	8.46	8.86	9.25	9.65	10.04	10.43	11.00	11.22	11.50	12.01	12.40	12.80	13.20	13.58	13.80	14.40	14.76	15.16	15.55
mm	195.00	205.00	215.00	225.00	235.00	245.00	255.00	265.00	279.40	285.00	292.10	305.00	315.00	325.00	335.28	345.00	350.52	365.76	375.00	385.00	395.00
MoA	0.847	0.889	0.931	0.973	1.014	1.056	1.098	1.140	1.200	1.223	1.253	1.307	1.349	1.390	1.433	1.474	1.497	1.561	1.599	1.641	1.683
Skill Level																					
Overall	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.02%	0.02%	0.04%	0.05%
1	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.02%	0.03%	0.04%	0.06%	0.08%	0.14%	0.19%	0.27%	0.37%
2	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.02%	0.02%	0.03%	0.05%	0.08%	0.11%	0.15%
3	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.02%	0.03%	0.05%	0.07%	0.10%
4	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.02%	0.03%	0.05%	0.07%
5	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.02%	0.03%	0.04%
6	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.02%	0.02%
7	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.02%
8	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%
9	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
10	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

900 yds Average Percentage 50.10s – Easy Conditions

V Bull Ø							ICFRA										Consid-ered	NRA Prop'd			
Inches	7.68	8.07	8.46	8.86	9.25	9.65	10.04	10.43	11.00	11.22	11.50	12.01	12.40	12.80	13.20	13.58	13.80	14.40	14.76	15.16	15.55
mm	195.00	205.00	215.00	225.00	235.00	245.00	255.00	265.00	279.40	285.00	292.10	305.00	315.00	325.00	335.28	345.00	350.52	365.76	375.00	385.00	395.00
MoA	0.847	0.889	0.931	0.973	1.014	1.056	1.098	1.140	1.200	1.223	1.253	1.307	1.349	1.390	1.433	1.474	1.497	1.561	1.599	1.641	1.683
Skill Level																					
Overall	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.02%	0.03%	0.04%	0.06%	0.08%	0.12%	0.16%
1	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.02%	0.03%	0.05%	0.08%	0.12%	0.18%	0.32%	0.37%	0.54%	0.72%	0.98%	1.31%
2	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.02%	0.03%	0.05%	0.10%	0.12%	0.17%	0.24%	0.33%	0.46%
3	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.02%	0.03%	0.04%	0.06%	0.11%	0.13%	0.20%	0.27%	0.38%	0.52%
4	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.02%	0.04%	0.05%	0.08%	0.11%	0.16%	0.22%
5	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.02%	0.02%	0.04%	0.05%	0.08%	0.11%
6	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.02%	0.03%	0.05%	0.07%
7	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.02%	0.03%	0.04%	0.06%
8	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.02%
9	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.01%	0.02%	0.03%
10	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

900 yds Average Percentage 50.10s – Average Conditions

V Bull Ø							ICFRA										Consid-ered	NRA Prop'd			
Inches	7.68	8.07	8.46	8.86	9.25	9.65	10.04	10.43	11.00	11.22	11.50	12.01	12.40	12.80	13.20	13.58	13.80	14.40	14.76	15.16	15.55
mm	195.00	205.00	215.00	225.00	235.00	245.00	255.00	265.00	279.40	285.00	292.10	305.00	315.00	325.00	335.28	345.00	350.52	365.76	375.00	385.00	395.00
MoA	0.847	0.889	0.931	0.973	1.014	1.056	1.098	1.140	1.200	1.223	1.253	1.307	1.349	1.390	1.433	1.474	1.497	1.561	1.599	1.641	1.683
Skill Level																					
Overall	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.02%	0.02%	0.03%	0.05%
1	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.02%	0.02%	0.04%	0.07%	0.08%	0.12%	0.17%	0.24%	0.34%
2	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.03%	0.03%	0.05%	0.07%	0.09%	0.13%
3	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.02%	0.03%	0.04%	0.06%	0.08%
4	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.02%	0.02%	0.04%	0.05%	0.07%
5	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.02%	0.03%	0.04%
6	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.02%	0.02%
7	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.02%
8	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%
9	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
10	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

900 yds Average Percentage 50.10s – Difficult Conditions

V Bull Ø							ICFRA										Consid-ered	NRA Prop'd			
Inches	7.68	8.07	8.46	8.86	9.25	9.65	10.04	10.43	11.00	11.22	11.50	12.01	12.40	12.80	13.20	13.58	13.80	14.40	14.76	15.16	15.55
mm	195.00	205.00	215.00	225.00	235.00	245.00	255.00	265.00	279.40	285.00	292.10	305.00	315.00	325.00	335.28	345.00	350.52	365.76	375.00	385.00	395.00
MoA	0.847	0.889	0.931	0.973	1.014	1.056	1.098	1.140	1.200	1.223	1.253	1.307	1.349	1.390	1.433	1.474	1.497	1.561	1.599	1.641	1.683
Skill Level																					
Overall	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.02%
1	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.02%	0.03%	0.04%	0.06%	0.08%	0.12%	0.17%
2	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.02%	0.03%	0.04%	0.06%	0.08%
3	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.02%	0.02%
4	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%
5	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.02%
6	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%
7	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
8	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
9	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
10	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

1000 yds Average Percentage 50.10s – All Conditions

V Bull Ø							ICFRA										Consid-ered	NRA Prop'd			
Inches	7.68	8.07	8.46	8.86	9.25	9.65	10.04	10.43	11.00	11.22	11.50	12.01	12.40	12.80	13.20	13.58	13.80	14.40	14.76	15.16	15.55
mm	195.00	205.00	215.00	225.00	235.00	245.00	255.00	265.00	279.40	285.00	292.10	305.00	315.00	325.00	335.28	345.00	350.52	365.76	375.00	385.00	395.00
MoA	0.763	0.800	0.838	0.875	0.913	0.951	0.988	1.026	1.080	1.101	1.128	1.176	1.214	1.251	1.290	1.326	1.347	1.405	1.439	1.477	1.514
Skill Level																					
Overall	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%
1	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.02%	0.03%	0.04%
2	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.02%
3	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%
4	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%
5	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
6	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
7	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
8	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
9	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
10	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

1000 yds Average Percentage 50.10s – Easy Conditions

V Bull Ø							ICFRA										Consid-ered	NRA Prop'd			
Inches	7.68	8.07	8.46	8.86	9.25	9.65	10.04	10.43	11.00	11.22	11.50	12.01	12.40	12.80	13.20	13.58	13.80	14.40	14.76	15.16	15.55
mm	195.00	205.00	215.00	225.00	235.00	245.00	255.00	265.00	279.40	285.00	292.10	305.00	315.00	325.00	335.28	345.00	350.52	365.76	375.00	385.00	395.00
MoA	0.763	0.800	0.838	0.875	0.913	0.951	0.988	1.026	1.080	1.101	1.128	1.176	1.214	1.251	1.290	1.326	1.347	1.405	1.439	1.477	1.514
Skill Level																					
Overall	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.02%
1	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.02%	0.03%	0.04%	0.06%	0.09%	0.13%
2	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.02%	0.02%	0.03%	0.04%	0.06%	0.09%
3	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.02%	0.03%	0.04%
4	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.02%	0.02%	0.04%
5	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%
6	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
7	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
8	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
9	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
10	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

1000 yds Average Percentage 50.10s – Average Conditions

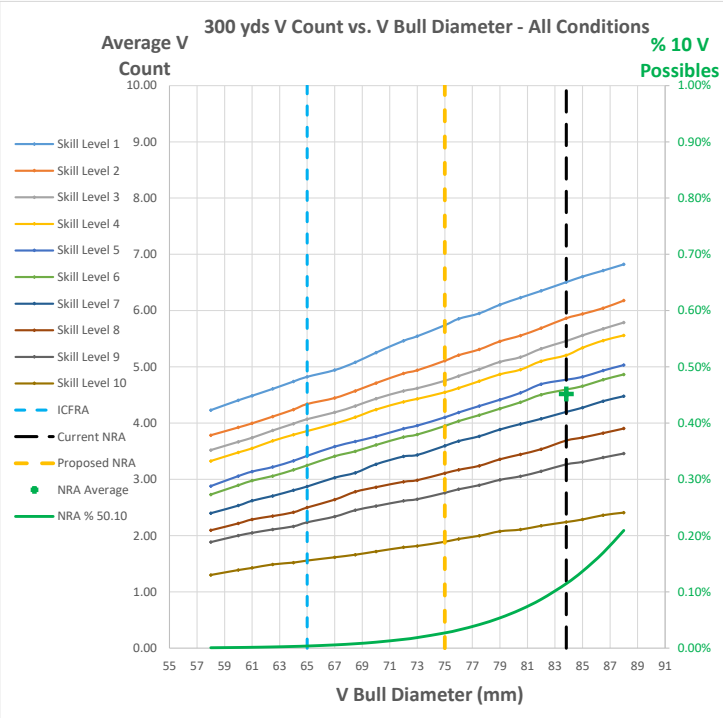
V Bull Ø							ICFRA										Consid-ered	NRA Prop'd			
Inches	7.68	8.07	8.46	8.86	9.25	9.65	10.04	10.43	11.00	11.22	11.50	12.01	12.40	12.80	13.20	13.58	13.80	14.40	14.76	15.16	15.55
mm	195.00	205.00	215.00	225.00	235.00	245.00	255.00	265.00	279.40	285.00	292.10	305.00	315.00	325.00	335.28	345.00	350.52	365.76	375.00	385.00	395.00
MoA	0.763	0.800	0.838	0.875	0.913	0.951	0.988	1.026	1.080	1.101	1.128	1.176	1.214	1.251	1.290	1.326	1.347	1.405	1.439	1.477	1.514
Skill Level																					
Overall	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.02%	0.03%	0.04%
2	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%
3	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
4	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
5	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
6	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
7	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
8	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
9	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
10	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

1000 yds Average Percentage 50.10s – Difficult Conditions

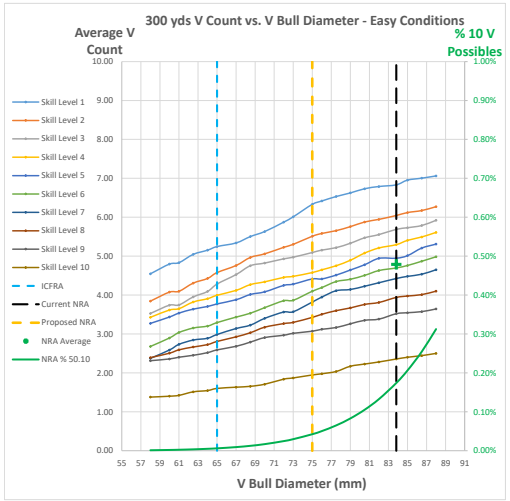
V Bull Ø							ICFRA										Consid-ered	NRA Prop'd			
Inches	7.68	8.07	8.46	8.86	9.25	9.65	10.04	10.43	11.00	11.22	11.50	12.01	12.40	12.80	13.20	13.58	13.80	14.40	14.76	15.16	15.55
mm	195.00	205.00	215.00	225.00	235.00	245.00	255.00	265.00	279.40	285.00	292.10	305.00	315.00	325.00	335.28	345.00	350.52	365.76	375.00	385.00	395.00
MoA	0.763	0.800	0.838	0.875	0.913	0.951	0.988	1.026	1.080	1.101	1.128	1.176	1.214	1.251	1.290	1.326	1.347	1.405	1.439	1.477	1.514
Skill Level																					
Overall	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
2	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
3	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
4	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
5	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
6	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
7	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
8	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
9	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
10	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

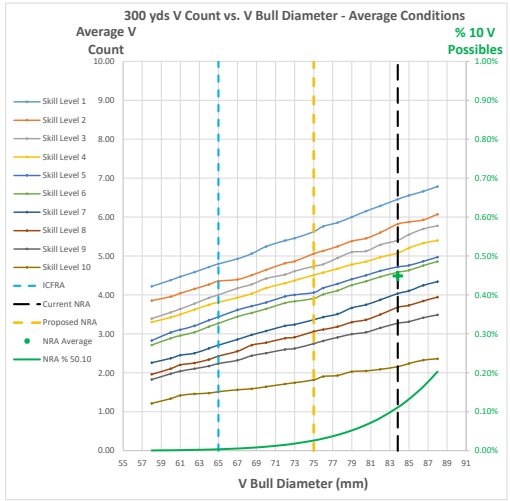
Annex J. UK Average V Counts and Overall Percentage 50.10s at Different Target Dimensions – Graphs

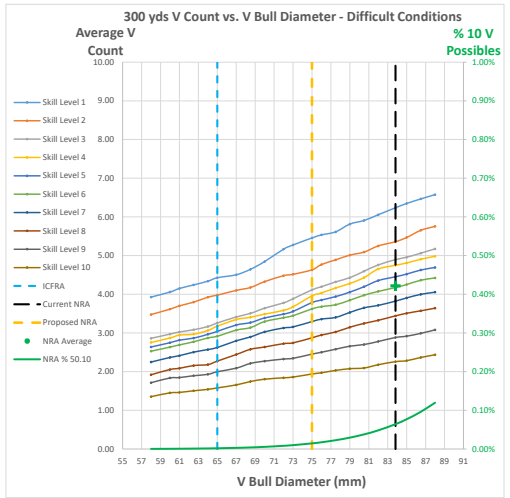
300 yds – All Conditions



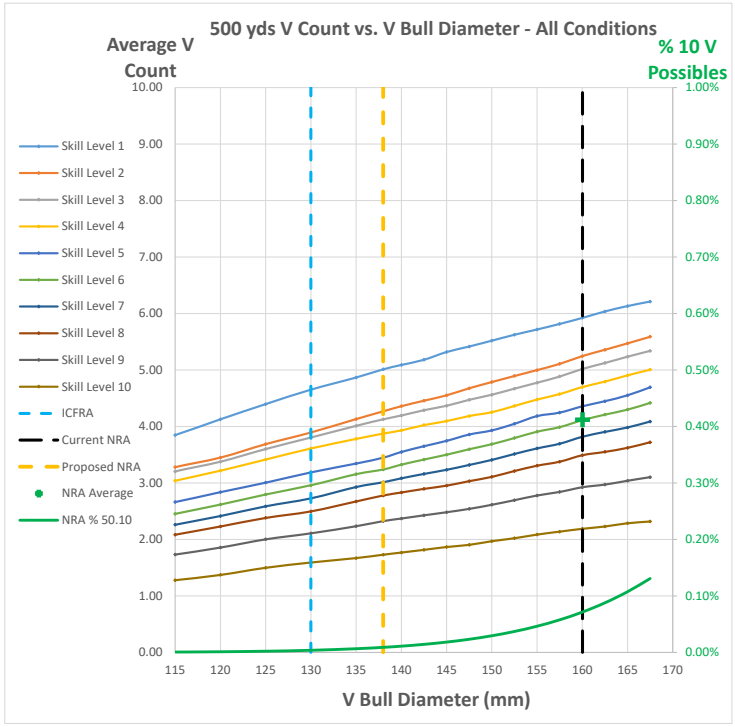
Below: Easy, Average & Difficult conditions



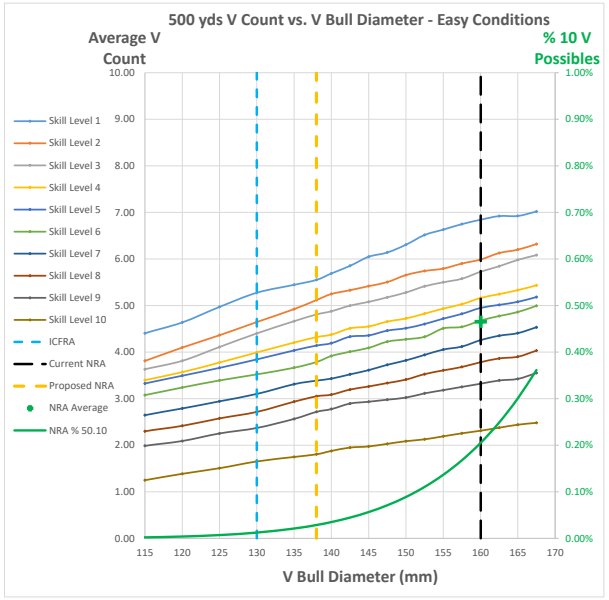


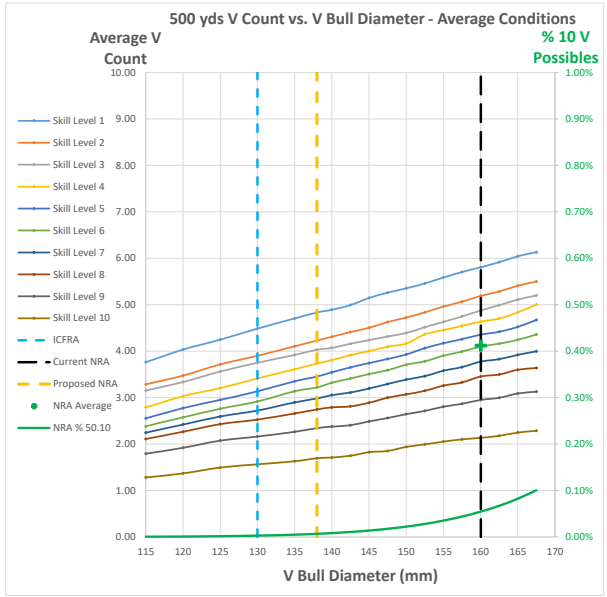


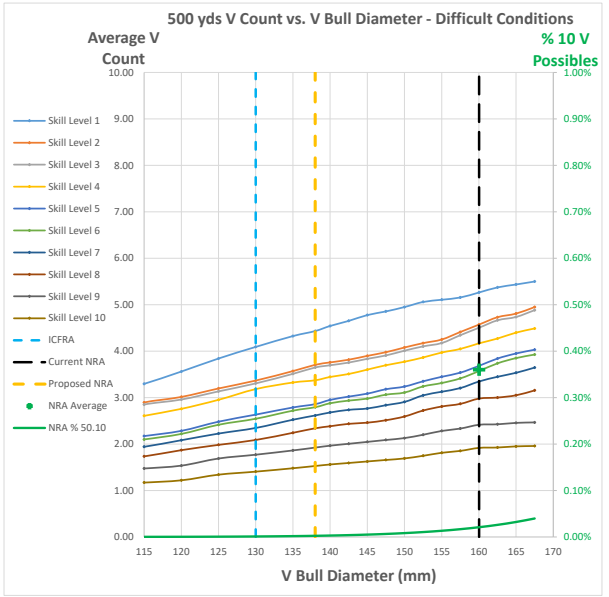
500 yds – All Conditions



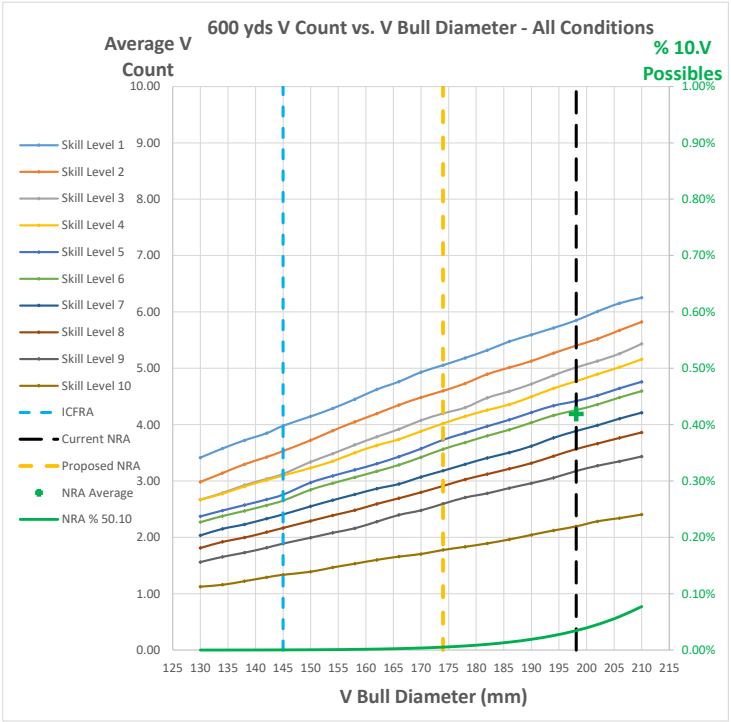
Below: Easy, Average & Difficult conditions



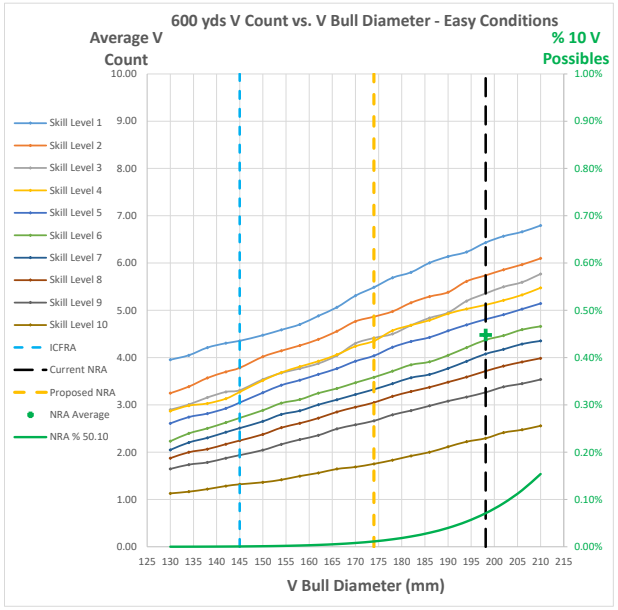


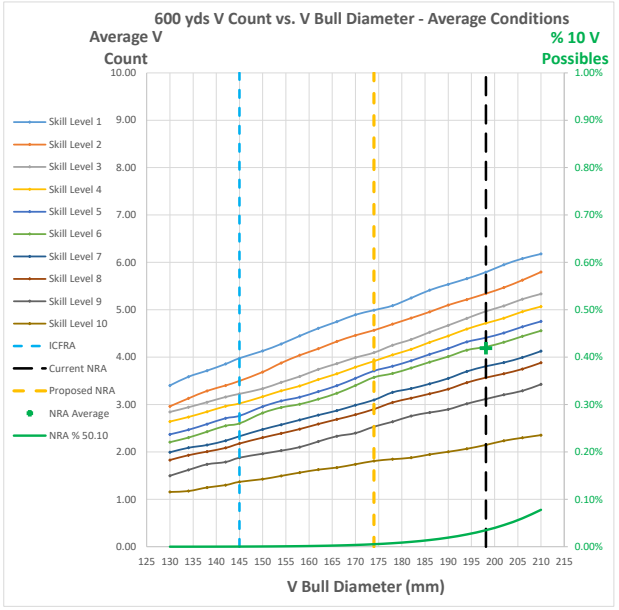


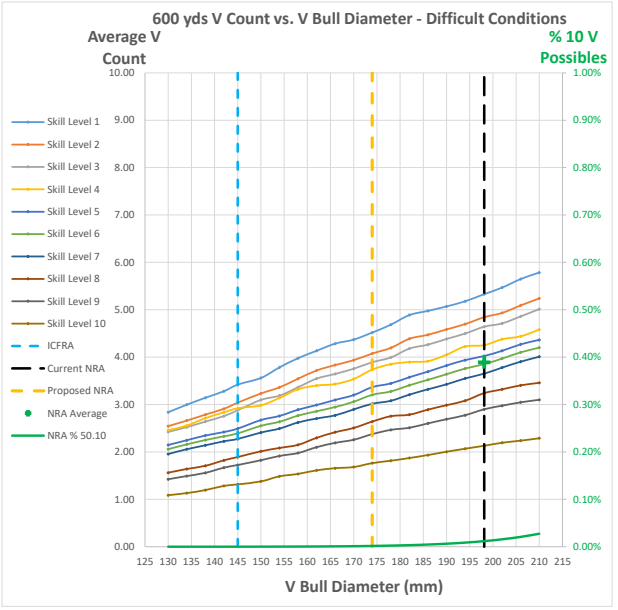
600 yds – All Conditions



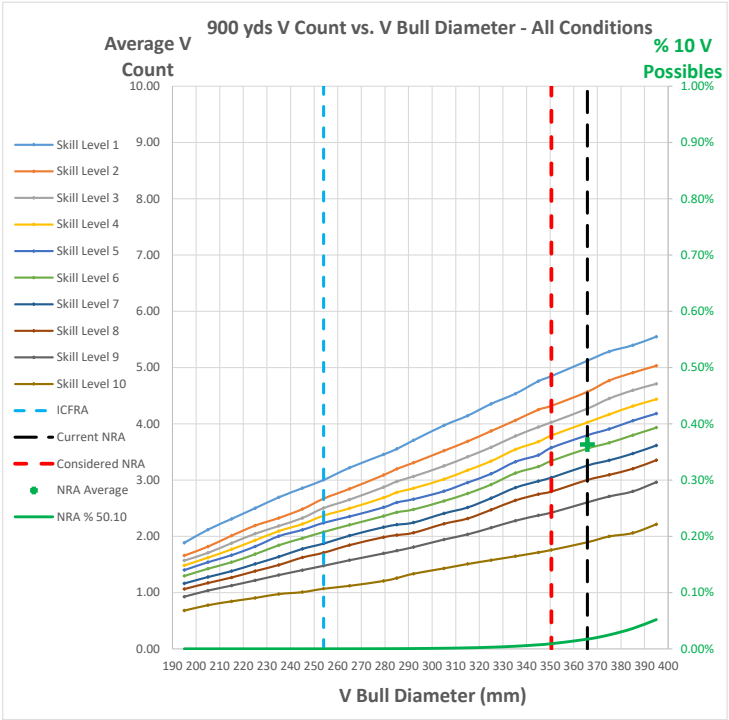
Below: Easy, Average & Difficult conditions



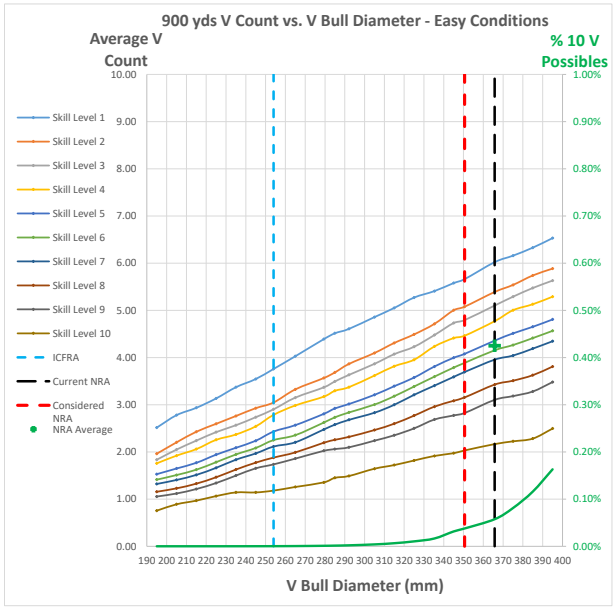


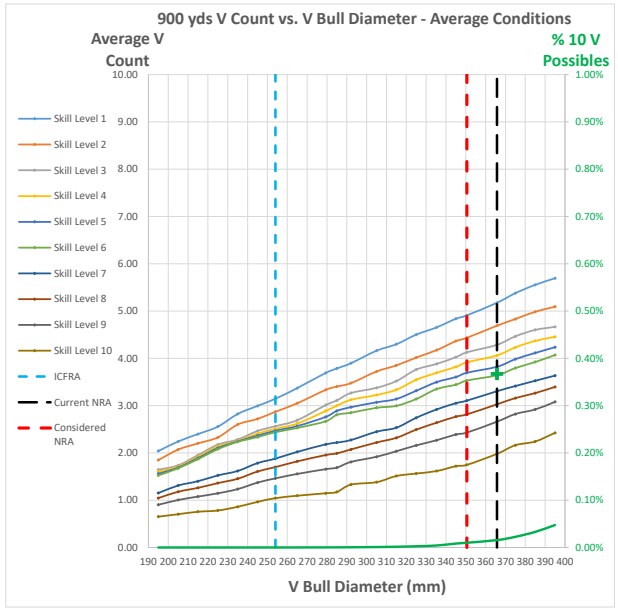


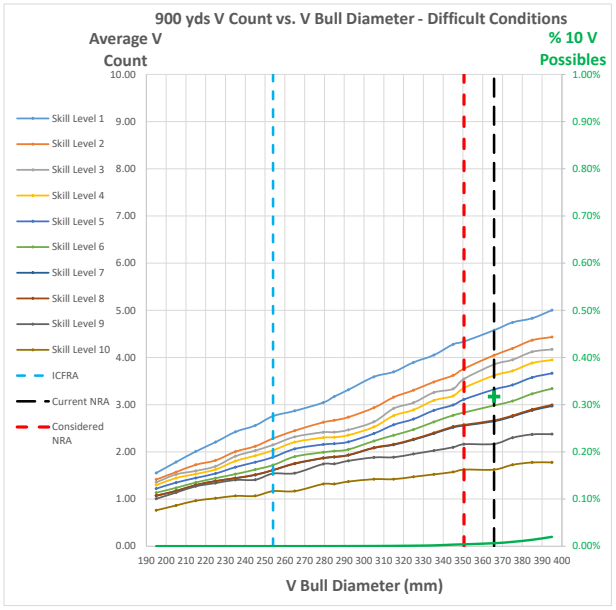
900 yds – All Conditions



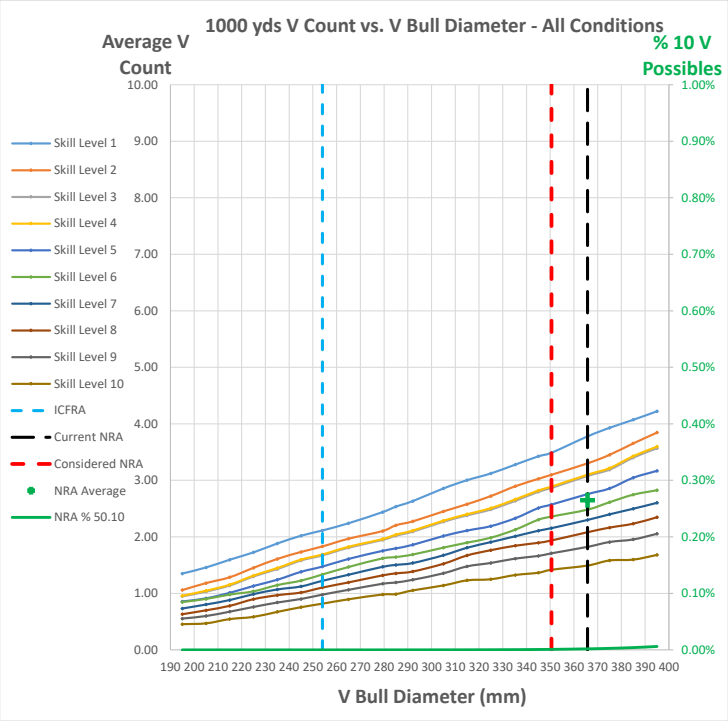
Below: Easy, Average & Difficult conditions



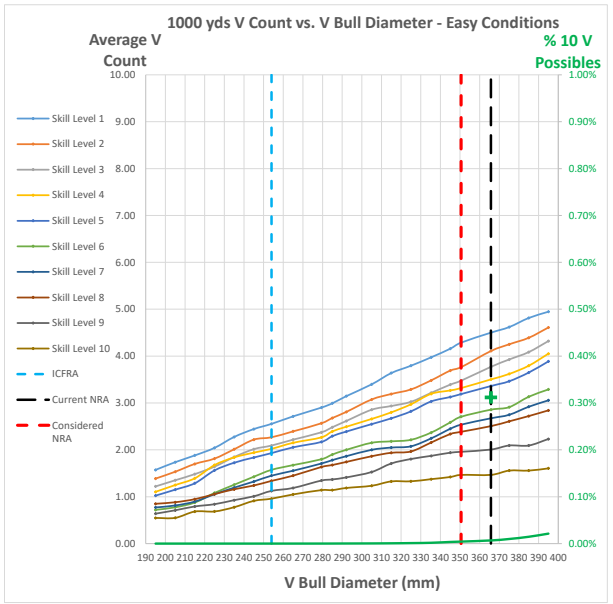


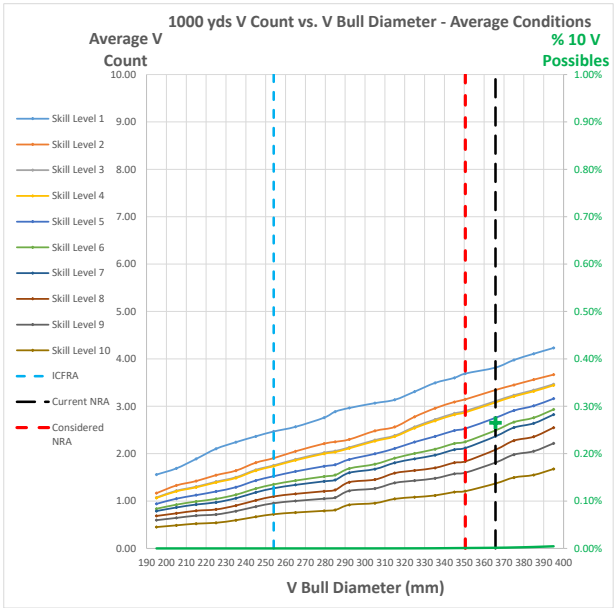


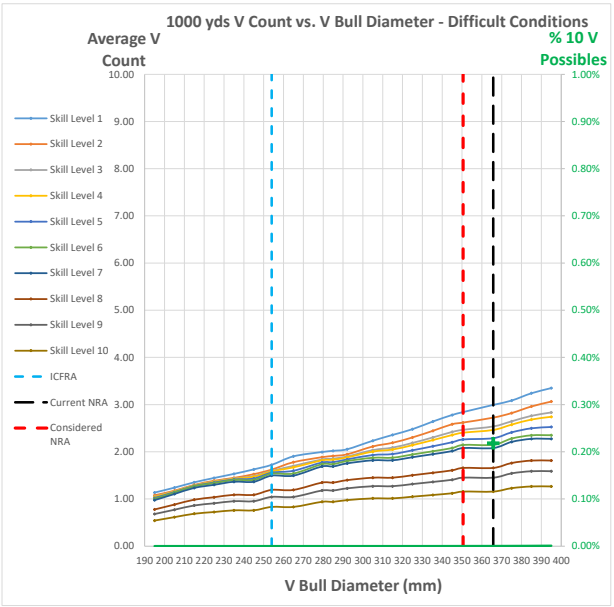
1000 yds – All Conditions



Below: Easy, Average & Difficult conditions







Annex K. Proposed Target Dimensions and Effects on Average Scores and Percentage of Possibles

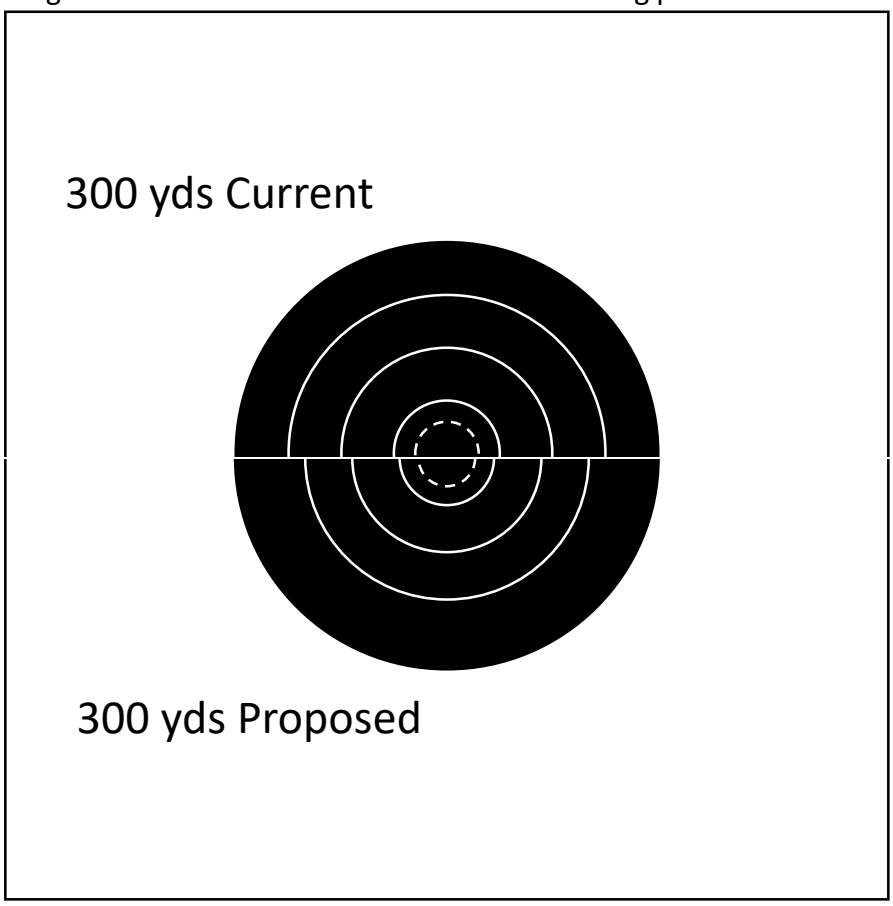
Current &	Diameter - mm						Average Score				Percentage Possibles			
Proposed	V	5	4	3	2	1	Overall	SL1	SL5	SL9	Overall	SL1	SL5	SL9
Current 300	83.8	139.7	279.4	419.1	558.8	1168.4	47.24	49.33	48.20	45.63	17.7%	49.7%	17.1%	1.9%
Proposed 300	75.0	125.0	250.0	375.0	560.0	1168.4	46.15	48.92	47.46	44.67	7.8%	30.3%	7.5%	0.6%
Difference 300	-8.8	-14.7	-29.4	-44.1	1.2	0.0	-1.09	-0.41	-0.74	-0.96	-9.9%	-19.4%	-9.6%	-1.3%
Current 500	160.0	266.7	660.4	990.6	1320.8	ROT	47.02	48.93	47.63	45.39	15.6%	40.1%	11.1%	2.9%
Proposed 500	138.0	230.0	460.0	915.0	1320.0	ROT	45.51	48.14	46.33	43.57	4.6%	17.4%	3.0%	0.6%
Difference 500	-22.0	-36.7	-200.4	-75.6	-0.8	0.0	-1.51	-0.79	-1.30	-1.82	-11.0%	-22.7%	-8.1%	-2.3%
Current 600	198.1	330.2	660.4	990.6	1320.8	ROT	46.98	48.89	47.70	45.57	10.9%	31.4%	9.0%	2.0%
Proposed 600	174.0	290.0	580.0	915.0	1320.0	ROT	46.07	48.35	46.94	44.49	3.5%	13.8%	2.7%	0.5%
Difference 600	-24.1	-40.2	-80.4	-75.6	-0.8	0.0	-0.91	-0.54	-0.76	-1.08	-7.4%	-17.6%	-6.3%	-1.5%
Current 900	365.8	609.6	1219.2	1828.8	2438.4	ROT	45.88	48.24	46.56	43.78	7.8%	22.9%	6.6%	1.5%
Proposed 900	365.8	609.6	1219.2	1828.8	2438.4	ROT	45.88	48.24	46.56	43.78	7.8%	22.9%	6.6%	1.5%
Difference 900	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0%	0.0%	0.0%	0.0%
Current 1000	365.8	609.6	1219.2	1828.8	2438.4	ROT	43.75	46.64	44.38	41.10	1.9%	6.9%	1.2%	0.1%
Proposed 1000	365.8	609.6	1219.2	1828.8	2438.4	ROT	43.75	46.64	44.38	41.10	1.9%	6.9%	1.2%	0.1%
Difference 1000	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0%	0.0%	0.0%	0.0%

Alternative Option Considered for the Long Range Target

Current &	Diameter - mm						Average Score				Percentage Possibles			
Proposed	V	5	4	3	2	1	Overall	SL1	SL5	SL9	Overall	SL1	SL5	SL9
Current 900	365.8	609.6	1219.2	1828.8	2438.4	ROT	45.88	48.24	46.56	43.78	7.8%	22.9%	6.6%	1.5%
Considered 900	350.5	584.2	1117.6	1828.8	2438.4	ROT	45.36	47.99	46.14	43.22	5.3%	17.3%	4.5%	0.9%
Difference 900	-15.3	-25.4	-101.6	0.0	0.0	0.0	-0.52	-0.25	-0.42	-0.56	-2.5%	-5.6%	-2.1%	-0.6%
Current 1000	365.8	609.6	1219.2	1828.8	2438.4	ROT	43.75	46.64	44.38	41.10	1.9%	6.9%	1.2%	0.08%
Considered 1000	350.5	584.2	1117.6	1828.8	2438.4	ROT	43.06	46.26	43.74	40.38	1.2%	4.7%	0.7%	0.04%
Difference 1000	-15.2	-25.4	-101.6	0.0	0.0	0.0	-0.69	-0.38	-0.64	-0.72	-0.7%	-2.2%	-0.5%	-0.04%

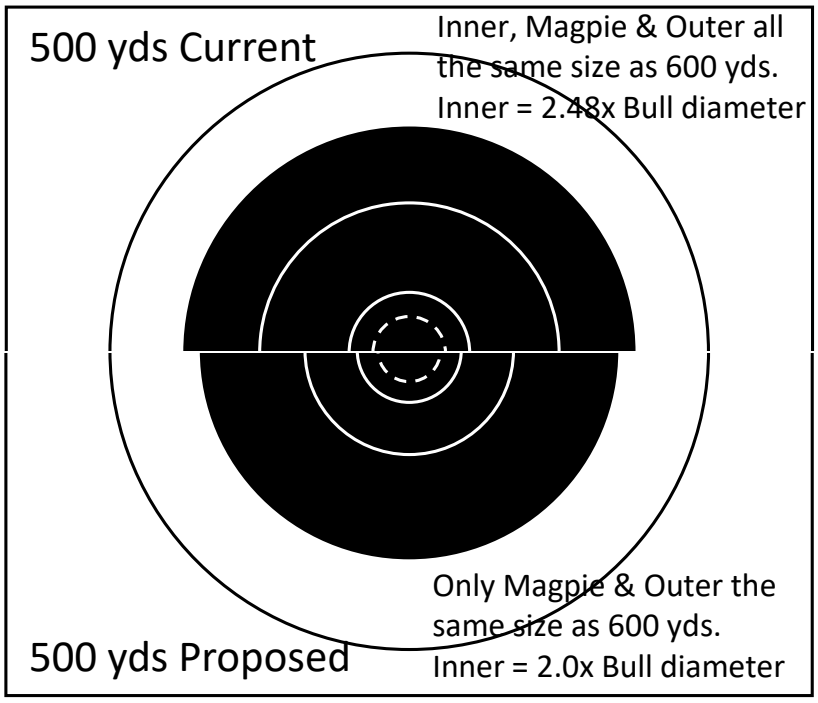
Annex L. Comparison of Current and Proposed Target Sizes

Targets are shown to scale as seen from the firing point.



4ft target

Figure 17 – Current and Proposed 300 yds Target Comparison



6ft target (see Figure 20)

Figure 18 – Current and Proposed 500 yds Target Comparison

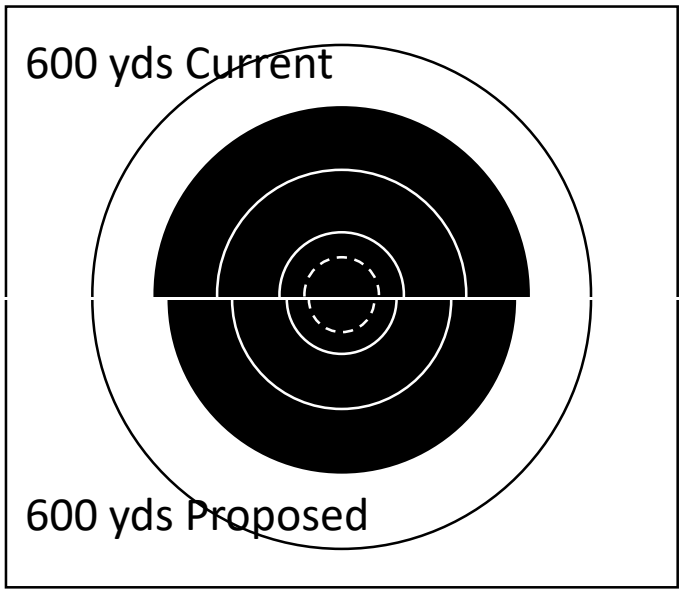


Figure 19 – Current and Proposed 600 yds Target Comparison

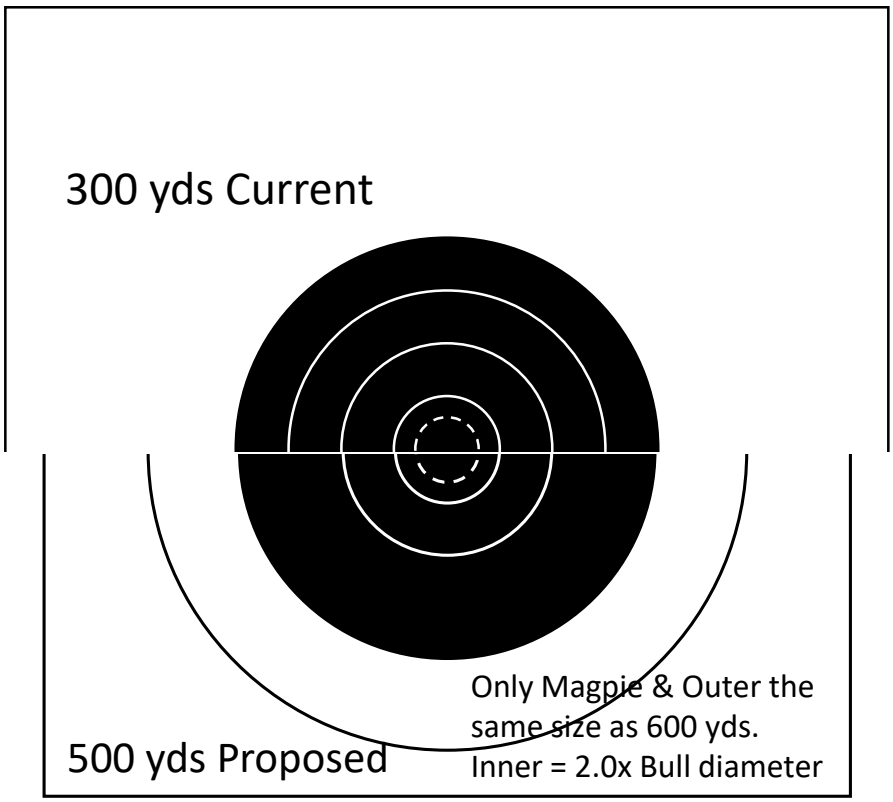


Figure 20 – Comparison Between Current 300 yds and Proposed 500 yds Targets

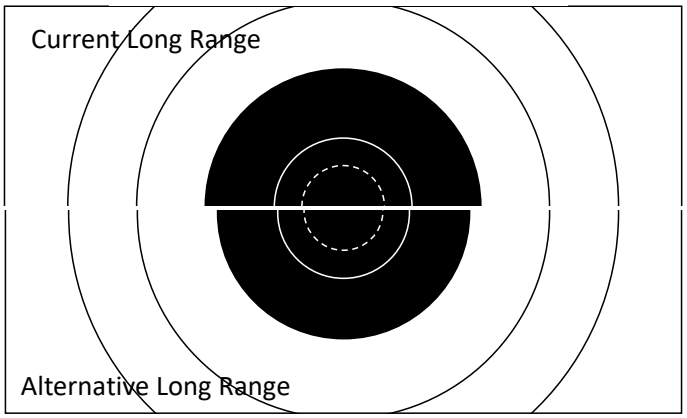


Figure 21 – Comparison Between Current and Alternative Long Range Targets

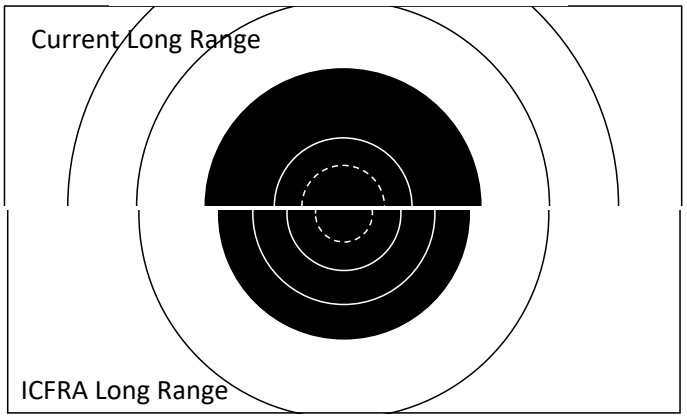


Figure 22 – Comparison Between Current NRA and ICFRA Long Range Targets

Annex M. Scoring of the Solution Options

	Objective	1	2	3	4	5	6	7	8	9	10	11	12	
		Move towards ICFRA	Spread out scores	Penalise poor shots	Uniform Bull dimensions	Limit tie shoots	Standardise aiming marks	Minimise No. target sizes	Avoid shooters quitting	Avoid buying advantage	Retain spirit of TR	MR accepts LR target	Convertible sighters conundrum	
	Weighting **Solution Options**	3	8	8	8	5	2	6	8	7	8	8	2	**Overall Score**
1	Do Nothing.	0.0	0.0	0.0	6.7	1.8	1.3	2.3	4.3	4.8	3.8	3.8	0.5	**206**
2	Adopt ICFRA for specific matches, but keep current dimensions for other comps.	4.3	4.5	3.5	4.0	3.8	2.3	3.3	9.8	9.0	6.5	7.0	1.3	**403**
3	Adopt ICFRA for specific matches and the Imperial Meeting individual TR competitions, but keep current dimensions for other shooting/MR	8.0	7.8	5.8	1.0	8.8	2.3	2.8	4.3	4.8	3.8	4.8	6.8	**354**
4	Adopt ICFRA at short ranges and a compromise at long range.	7.0	6.3	7.3	2.0	5.5	1.8	7.3	5.5	6.0	5.3	7.8	7.3	**424**
5	Adopt ICFRA target dimensions at all ranges.	10.0	6.5	7.5	4.0	7.0	2.0	8.5	3.3	5.5	3.3	2.5	7.5	**390**
6	At non-ICFRA distances, reduce the V Bull only.	2.5	3.3	2.0	3.5	7.5	1.5	4.0	7.3	6.8	5.5	7.5	7.3	**366**
7	At non-ICFRA distances, reduce	2.5	6.0	5.0	6.5	6.5	1.5	4.0	7.0	7.0	6.0	7.3	4.0	**426**

	Objective	1	2	3	4	5	6	7	8	9	10	11	12	
		Move towards ICFRA	Spread out scores	Penalise poor shots	Uniform Bull dimensions	Limit tie shoots	Standardise aiming marks	Minimise No. target sizes	Avoid shooters quitting	Avoid buying advantage	Retain spirit of TR	MR accepts LR target	Convertible sighters conundrum	
	the Bull only.													
8	At non-ICFRA distances, reduce the V Bull & Bull only.	2.5	7.8	6.0	6.5	7.5	1.5	4.0	6.5	6.5	6.3	7.3	6.5	**453**
9	At non-ICFRA distances, reduce all scoring rings. All rings whole number multiples of V Bull.	3.3	4.7	7.3	5.5	5.3	3.0	3.0	3.7	4.0	3.3	3.7	6.7	**327**
10	At non-ICFRA distances, reduce all scoring rings. All rings whole number multiples of Bull.	3.7	5.0	7.7	7.5	5.3	1.3	3.0	4.7	5.7	4.7	5.0	6.7	**387**
11	At non-ICFRA distances, reduce all scoring rings. All ring dimensions to be determined to best meet the objectives.	4.8	6.5	8.8	8.3	6.5	4.8	5.8	5.5	6.0	5.5	7.0	6.8	**479**
12	Move to outward gauging on current NRA targets.	1.5	6.5	5.0	4.5	6.0	2.5	4.5	7.0	7.5	5.0	7.5	5.0	**413**

Annex N. Proposed NRA Target Rifle Target Dimensions

Proposed TR Target Dimensions	Diameter - mm					
	V	5	4	3	2	1
200	48.0	80.0	160.0	240.0	360.0	1168.4
300	75.0	125.0	250.0	375.0	560.0	1168.4
400	105.0	175.0	350.0	525.0	745.0	ROT
500	138.0	230.0	460.0	915.0	1320.0	ROT
600	174.0	290.0	580.0	915.0	1320.0	ROT
Long Range	365.8 (14.4”)	609.6 (24”)	1219.2 (48”)	1828.8 (72”)	2438.4 (96”)	ROT
Alternative Long Range	351.0 (13.8”)	585.0 (23”)	1120.0 (44”)	1830.0 (72”)	2440.0 (96”)	ROT

ROT = Rest of Target (as current) Shaded cells are coincident with the aiming mark.

Effect of the Proposed Dimensions on Average Scores

Current Average	New Average					New Average Alternative LR Target	
	300	**500**	**600**	**900**	**1000**	**900**	**1000**
49.5	49.14	48.92	49.11	49.5	49.5	49.34	49.28
49.0	48.37	48.24	48.48	49.0	49.0	48.80	48.75
48.5	47.84	47.51	47.75	48.5	48.5	48.26	48.22
48.0	47.22	46.84	47.22	48.0	48.0	47.73	47.69
47.5	46.64	46.15	46.71	47.5	47.5	47.19	47.16
47.0	46.11	45.50	46.09	47.0	47.0	46.63	46.64
46.5	45.59	44.89	45.51	46.5	46.5	46.07	46.10
46.0	45.06	44.29	44.96	46.0	46.0	45.49	45.56
45.5	44.53	43.70	44.41	45.5	45.5	44.92	44.96
45.0	43.98	43.14	43.87	45.0	45.0	44.42	44.40
44.5	43.43	42.58	43.32	44.5	44.5	43.93	43.87
44.0	42.88	42.03	42.78	44.0	44.0	43.44	43.33
43.5	42.33	41.47	42.23	43.5	43.5	42.94	42.80
43.0	41.78	40.92	41.69	43.0	43.0	42.44	42.29
42.5	41.23	40.36	41.14	42.5	42.5	41.94	41.79
42.0	40.68	39.81	40.60	42.0	42.0	41.44	41.29
41.5	40.13	39.25	40.05	41.5	41.5	40.94	40.78
41.0	39.58	38.70	39.51	41.0	41.0	40.44	40.28
40.5	39.03	38.15	38.96	40.5	40.5	39.94	39.78
40.0	38.48	37.59	38.42	40.0	40.0	39.44	39.28

Note: The new averages listed above assume that shooters’ group sizes do not change. Experience shows that, for most people, their group size will gradually tighten to meet the challenge of the reduced target dimensions. New averages are therefore likely to be higher than those predicted in the table above.