| i | **Calculation without errors.** |
| ii | **Project information** |

| ? | **Input section** |

1.0 Setting of environment units and parameters

1.1	Calculation units		SI Units (N, mm, kW…) ▼		
1.2	Altitude	H	0 / 0 ▼	[m]	
1.3	Air temperature	T	20.0	[ºC]	15
1.4	Air pressure	p	101.320	[kPa]	☑
1.5	Air density	Q	1.20411	[kg/m^3]	
1.6	Sound velocity	vs	343.71	[m/s]	

1.7 Wind speed

1.	β	0.00	[deg]	●
	V	0.00	[m/s]	

2.					○

1.8 Number of points: 1 ▼

	x [m]	Vx	Vy	Vz	
x1	0	0.0	0.0	0.0	[m/s]
x2	50	0.0	0.0	0.0	[m/s]
x3	100	0.0	0.0	0.0	[m/s]
x4	150	0.0	0.0	0.0	[m/s]
x5	200	0.0	0.0	0.0	[m/s]

2.0 Calculation of the ballistic parameters

| 2.1	**Selection of the bullet A.**	Rifle; .22 LONG RIFLE STANDARD; d=5.7 mm; m=40 grs; v0=325 m/s; BC=0.135 ▼	☑
2.2	**Selection of the bullet B.**	Rifle; S&B 6,5 × 55 SE; d=6.5 mm; m=140 grs; v0=723 m/s; BC=0.444 ▼	☑

			A	B	
2.3	Bullet diameter	d	5.700	6.500	[mm]
2.4	Bullet mass	m	40.00000	140.00000	[grain] grain ▼
2.5	Muzzle velocity	v0	325.00	723.00	[m/s]
2.6	Initial energy (0.5*m*v0*v0)	E0	136.89	2371.06	[J]
2.7	Initial energy (table)	E0	131.00	2378.00	[J]
2.8	Form factor	T	0.8405	0.6878	[~] ○
2.9	Ballistic Coefficient	BC	0.1350	0.4440	[lb/in^2] ●
2.10	Drag function	C(M)	G1 ▼	G1 ▼	
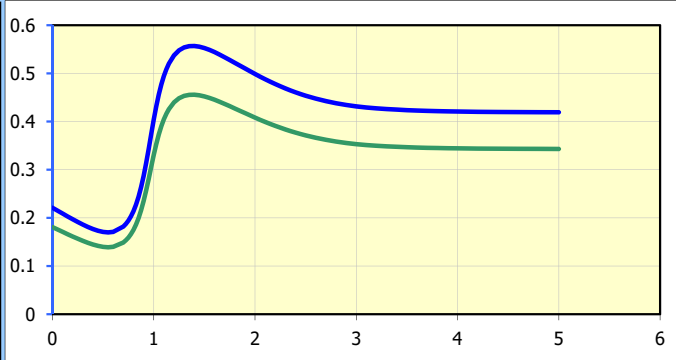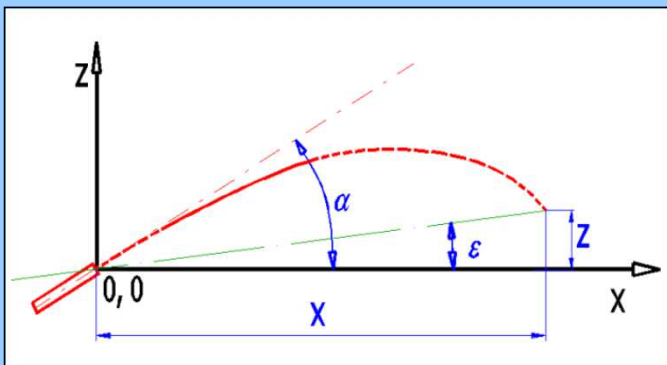
			A	B	
2.11	Selection of calculation for:		Bullet A + B ▼		
2.12	Sighting axis height	h	5.00		[cm]
2.13	Firing angle	α	0.3284	0.0857	[deg] ○
2.14	Zero range	x	100.00	100.00	[m] ●
2.15	Zero range (Height)	z	0.00	0.00	[m]
2.16	Place angle (Height)	ε	0.0000	0.0000	[deg]
2.17	Firing angle - Place angle	δ	0.3284	0.0857	[deg]
2.18	Calculation step	dt			
2.19	Calculation step	dt	0.040	0.035	[ms] ☐
2.20	Time of flight	tsum	0.335	0.145	[s]
2.21	Number of calculations steps	n1, n2	9281	4568	

2.22	**Shot parameters**
2.23	**A. d=5.7[mm]; m=40[grain]; v0=325[m/s]; BC=0.135; E0=137[J]; Cx(G1)**
2.24	**B. d=6.5[mm]; m=140[grain]; v0=723 [m/s]; BC=0.444; E0=2371[J]; Cx(G1)**
2.25	**Results graph**

3. Coordinate z [m] ▼   Line of fire x-value   28.7572   [m] ☑
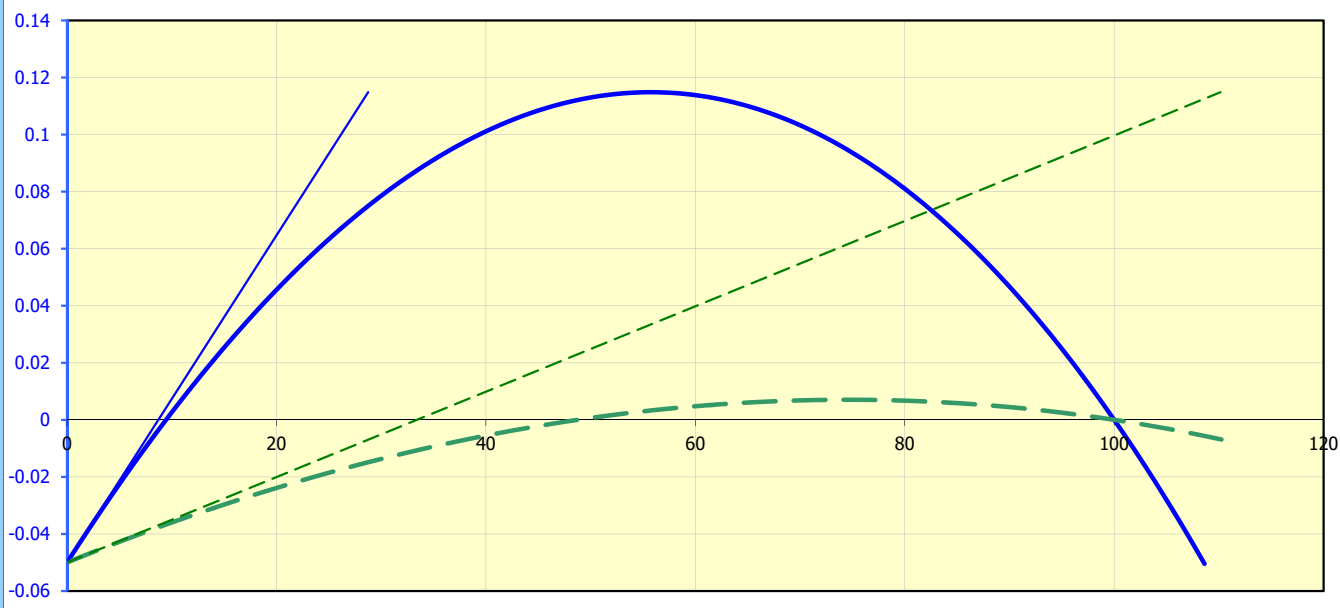
3.0   Tables

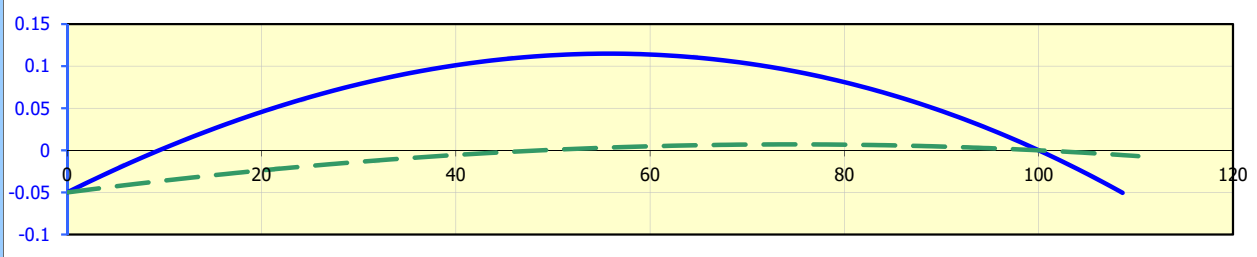**3.1 A. d=5.7[mm]; m=40[grain]; v0=325[m/s]; BC=0.135; E0=137[J]; Cx(G1)**
3.2 B. d=6.5[mm]; m=140[grain]; v0=723 [m/s]; BC=0.444; E0=2371[J]; Cx(G1)

3.3 Height deviation

Distance		10	20	**30**	40	50	**60**	70	80	90	**100**	
Bullet A		0.3	4.6	**7.9**	10.1	11.3	**11.4**	10.3	8.1	4.7	**0.0**	[cm]
		0.9	7.8	**9.0**	8.7	7.8	**6.5**	5.1	3.5	1.8	**0.0**	[MOA]
Bullet B		-3.6	-2.4	**-1.4**	-0.6	0.1	**0.5**	0.7	0.7	0.4	**0.0**	[cm]
		-12.4	-4.1	**-1.6**	-0.5	0.0	**0.3**	0.3	0.3	0.2	**0.0**	[MOA]

3.4 Lateral deviation - wind in perpendicular direction

Wind speed	[m/s]	10	20	**30**	40	50	**60**	70	80	90	**100**	[m]
Bullet A	5	0.1	0.6	**1.4**	2.4	3.9	**5.5**	7.5	9.8	12.4	**15.2**	[cm]
	10	0.3	1.2	**2.7**	4.9	7.7	**11.0**	15.0	19.5	24.9	**30.4**	[cm]
	15	0.4	1.9	**4.1**	7.3	11.6	**16.6**	22.6	29.4	37.4	**45.7**	[cm]
	20	0.6	2.5	**5.5**	9.8	15.5	**22.1**	30.2	39.3	49.9	**61.7**	[cm]
	30	0.9	3.8	**8.3**	14.8	23.5	**33.4**	45.5	59.3	75.4	**93.1**	[cm]
	5	0.5	1.1	**1.6**	2.1	2.7	**3.2**	3.7	4.2	4.7	**5.2**	[MOA]
	10	1.0	2.1	**3.1**	4.2	5.3	**6.3**	7.4	8.4	9.5	**10.5**	[MOA]
	15	1.5	3.2	**4.7**	6.3	8.0	**9.5**	11.1	12.6	14.3	**15.7**	[MOA]
	20	2.0	4.3	**6.3**	8.4	10.7	**12.7**	14.8	16.9	19.1	**21.2**	[MOA]
	30	3.0	6.5	**9.5**	12.7	16.2	**19.2**	22.4	25.5	28.8	**32.0**	[MOA]
Bullet B	5	0.1	0.6	**1.3**	2.3	3.6	**5.1**	6.8	8.8	11.0	**13.6**	[cm]
	10	0.3	1.1	**2.6**	4.5	7.2	**10.2**	13.6	17.7	22.1	**27.2**	[cm]
	15	0.4	1.7	**4.0**	6.8	10.8	**15.3**	20.5	26.5	33.6	**40.9**	[cm]
	20	0.6	2.3	**5.3**	9.1	14.5	**20.5**	27.4	35.5	44.9	**54.7**	[cm]
	30	0.9	3.5	**8.0**	14.2	21.9	**31.0**	41.9	54.2	67.8	**82.6**	[cm]
	5	0.5	1.0	**1.5**	2.0	2.5	**2.9**	3.3	3.8	4.2	**4.7**	[MOA]
	10	1.0	2.0	**3.0**	3.9	5.0	**5.8**	6.7	7.6	8.4	**9.4**	[MOA]
	15	1.4	3.0	**4.5**	5.9	7.4	**8.8**	10.0	11.4	12.8	**14.1**	[MOA]
	20	1.9	4.0	**6.1**	7.9	9.9	**11.7**	13.4	15.2	17.1	**18.8**	[MOA]
	30	2.9	6.0	**9.2**	12.2	15.0	**17.7**	20.6	23.3	25.9	**28.4**	[MOA]

3.5 Flight time

	10	20	**30**	40	50	**60**	70	80	90	**100**	[m]
Bullet A	31	63	**95**	128	161	**195**	229	264	299	**335**	[ms]
Bullet B	14	28	**42**	56	71	**85**	100	115	130	**145**	[ms]

3.6 Lead

Target speed	[km/h]	10	20	**30**	40	50	**60**	70	80	90	**100**	[m]
Bullet A	4	0.04	0.07	**0.11**	0.14	0.18	**0.22**	0.26	0.29	0.33	**0.37**	[m]
	6	0.05	0.11	**0.16**	0.21	0.27	**0.33**	0.38	0.44	0.50	**0.56**	[m]
	15	0.13	0.26	**0.40**	0.53	0.67	**0.81**	0.96	1.10	1.25	**1.40**	[m]
	50	0.43	0.87	**1.32**	1.77	2.24	**2.71**	3.18	3.67	4.16	**4.65**	[m]
	90	0.78	1.57	**2.37**	3.19	4.03	**4.87**	5.73	6.60	7.48	**8.38**	[m]
Bullet B	4	0.02	0.03	**0.05**	0.06	0.08	**0.10**	0.11	0.13	0.14	**0.16**	[m]
	6	0.02	0.05	**0.07**	0.09	0.12	**0.14**	0.17	0.19	0.22	**0.24**	[m]
	15	0.06	0.12	**0.18**	0.24	0.30	**0.36**	0.42	0.48	0.54	**0.60**	[m]
	50	0.19	0.39	**0.58**	0.78	0.98	**1.18**	1.39	1.59	1.80	**2.01**	[m]
	90	0.35	0.70	**1.05**	1.41	1.77	**2.13**	2.50	2.87	3.24	**3.62**	[m]

Altitude = 0 [m]; Air temperature = 20 [ºC]; Air pressure = 101.32 [kPa]