



Kongsberg Target Systems

eScore – Electronic Target System platform

More shooting, Better tracking, Faster training

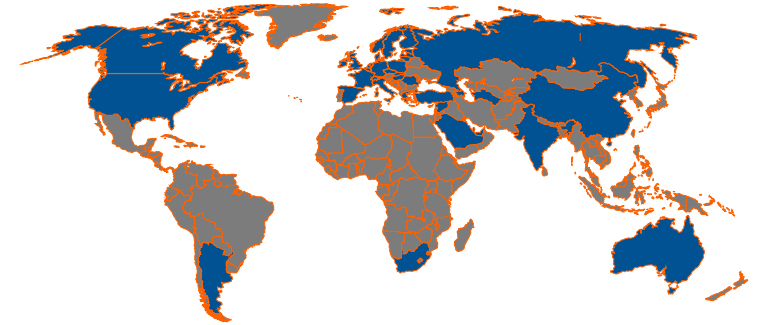
Better shooters, Virtually no reset time



Kongsberg Target Systems

Kongsberg Target Systems is a Norwegian company and one of the world's leading suppliers of electronic target systems. Since 1994 they have delivered more than 15,000 targets to 35 nations around the world.

Their targets are in operation in cold arctic areas, wet coastal regions as well as the inhospitable Australian desert. The targets are used at demanding military and law enforcement installations, for sports shooting and by hunters – at shooting distances ranging from 10m to 2,000m.



A brief history:

- 1992 University Project –the first targets
- 1994 Foundation of the company
- 1997 First international event (European Cup)
- 2001 The Norwegian National Championship
- 2006 Danish National Shooting Center
- 2012 Name change and 10 000+ targets
- 2015 Delivered to Talladega US national range south and Nationals US championship
- 2018 Supplier to French shooting federation
- 2021 Introduced the new generation system - **Kongsberg eScore**

Electronic Targets - benefits

- **Electronic Targets** detect the accurate hit location of real bullets in the targets.
- **Electronic Targets** replace regular paper or steel targets on a firing range.
- **Electronic Targets** provide for more cost and time efficient training. There is no need for manpower on the target line and frequent maintenance.
- **Electronic Targets** enable competitions with displays for each shooter, immediate distribution of results on large spectator screens at the arena and via LAN connection in real-time.
- **Electronic Targets** provides detailed information to the shooter about each shot, giving immediate feedback on the line.
- **Electronic Targets** provide the ability to easily store shot details for comparison and analyses to improve the training.



Detection technology

Optical targets

- Pros
 - Accurate
 - No consumables
- Cons
 - Expensive
 - Difficult in direct sunlight



Acoustic targets – open (LOMAH)

- Pros
 - Cheap
 - Covers large areas
 - No consumables
- Cons
 - Supersonic only
 - Inaccurate
 - Prone to disturbance (noise & weather)

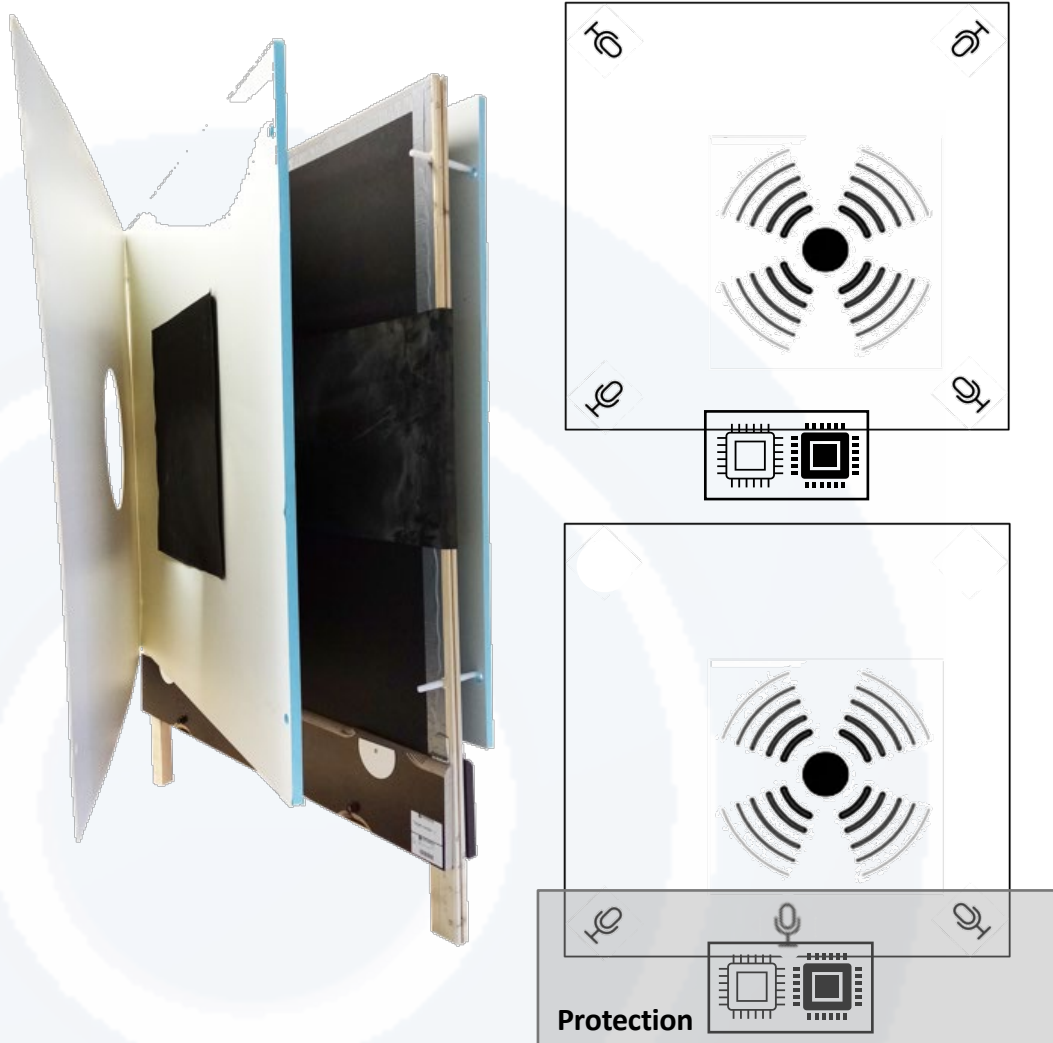


Acoustic targets – closed (boxed)

- Pros
 - Robust (weather & handling)
 - Affordable
 - Accurate
- Cons
 - Maintenance and consumables



Detection Technology - Acoustic



The technology for the targets from Kongsberg Target Systems is acoustic detection of the bullet.

- Multiple microphones detect the sound wave from supersonic bullets, or impact from subsonic bullets. The time difference between the sound detection by each microphone is triangulated and an accurate position of the hit is calculated.
- The closed target is a sound chamber that reduces disturbance, minimizes the distance over which the bullet is detected, and thereby significantly increases the accuracy of the system compared to other technologies.
- Complex algorithms accurately calculate the position, as well as filtering away noise and compensating for temperature and other disturbing components.

Targets

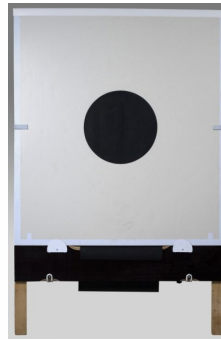
OpticScore



H4D



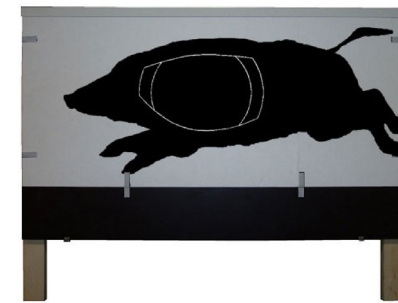
H1E / U7E



H3A / U5A



U3B



H4H / U4H

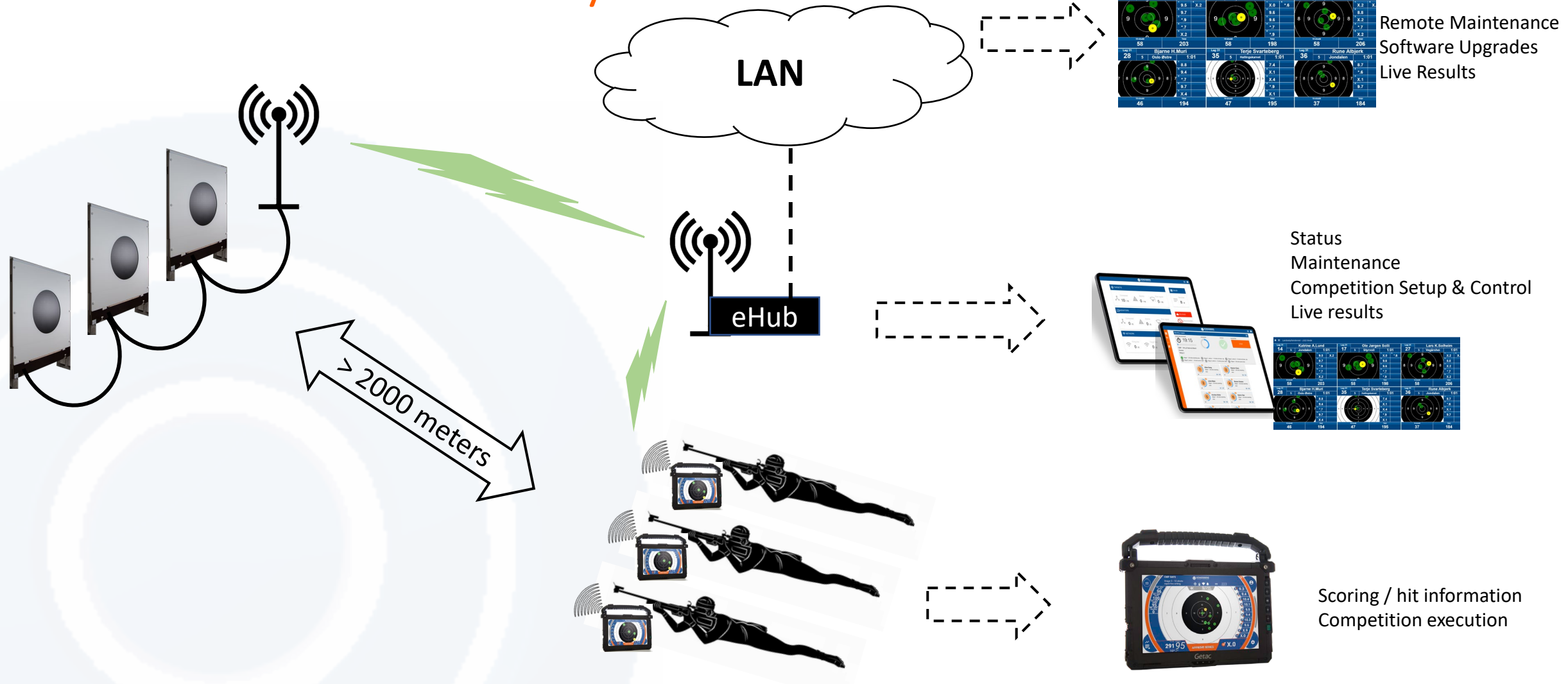


Size (HxW)	170x170	640x823	1160x1300	1300x1300	820x1500	1822x1822
Accuracy	0.1mm	0.5mm	1mm/3mm	1mm/3mm	5mm	5mm
Caliber	AR/.22LR	Pistol/.22LR	.22LR/.308	.22LR/.308	.223/.308	.223/.308
Typical range	25m	50m	100-300m	100-300m	60m	100-1000m

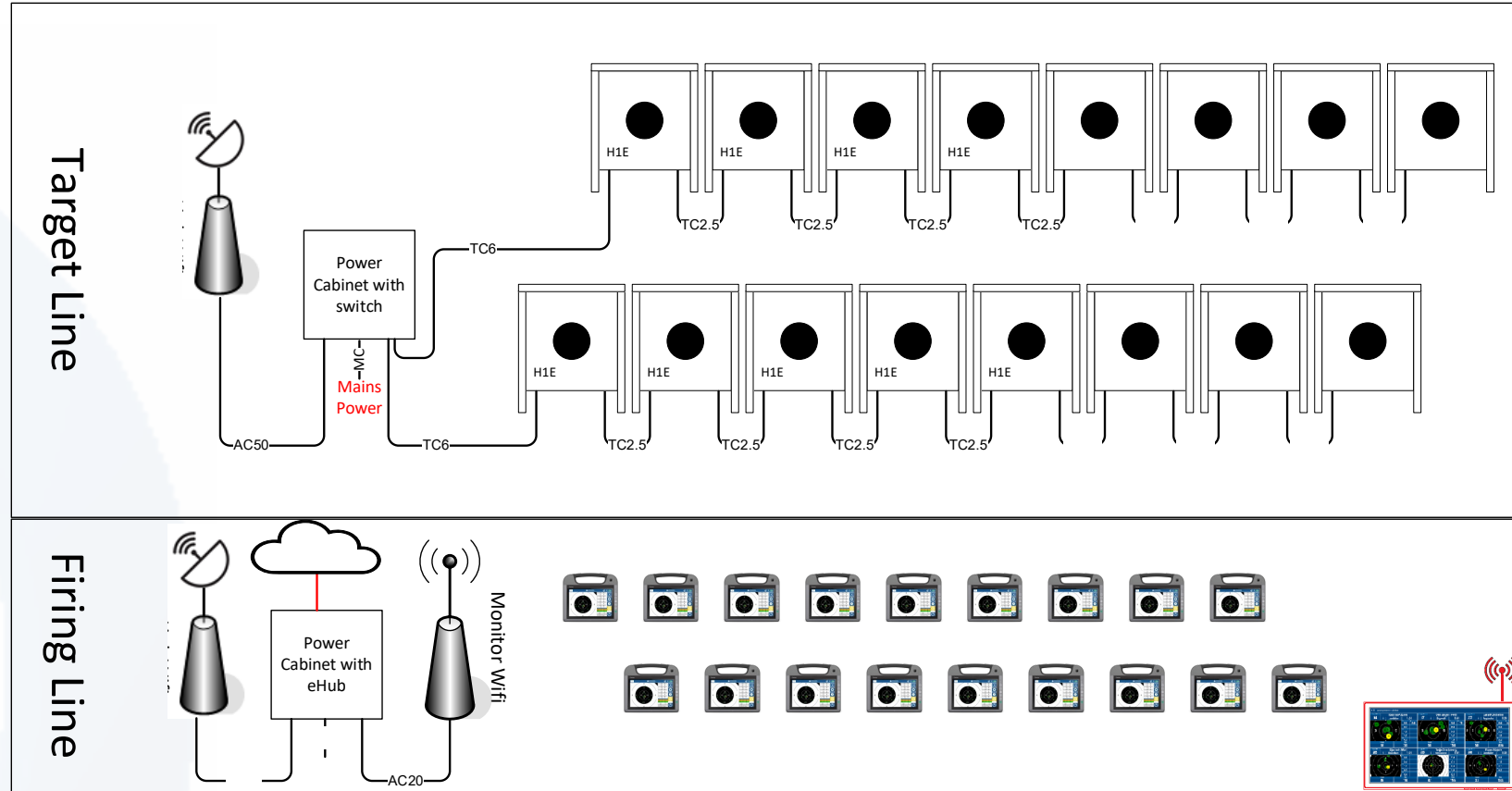
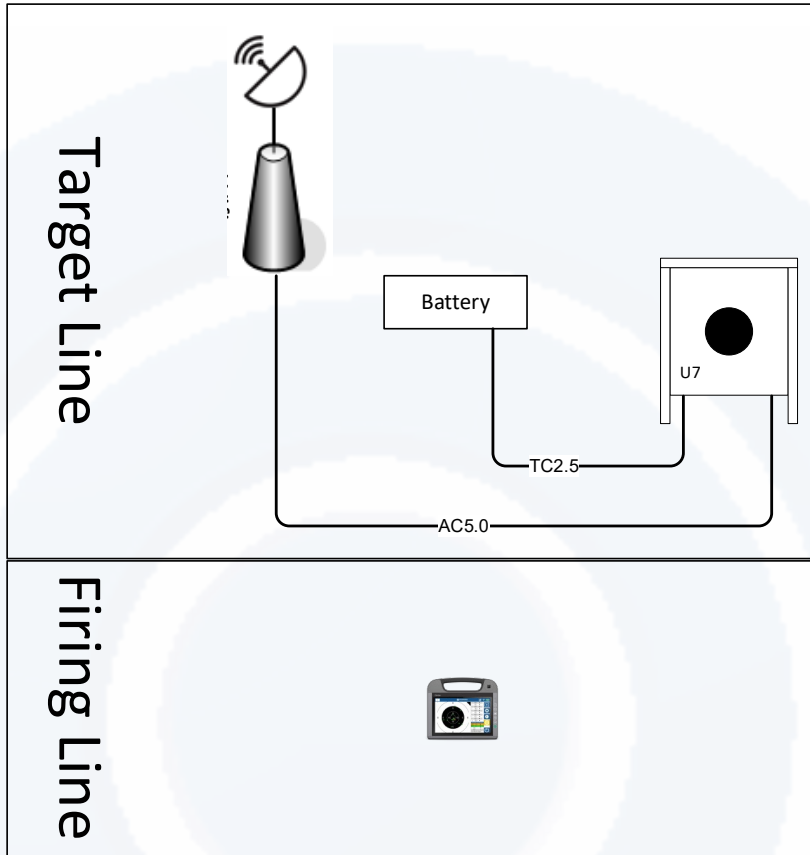


The accuracy, caliber and range are for indications only. The performance of the target depends on the performance of the shooters (good shooters can have small targets on long distances), the velocity of the bullet at impact (larger calibers can commonly be used at longer ranges), and maintenance of the target.

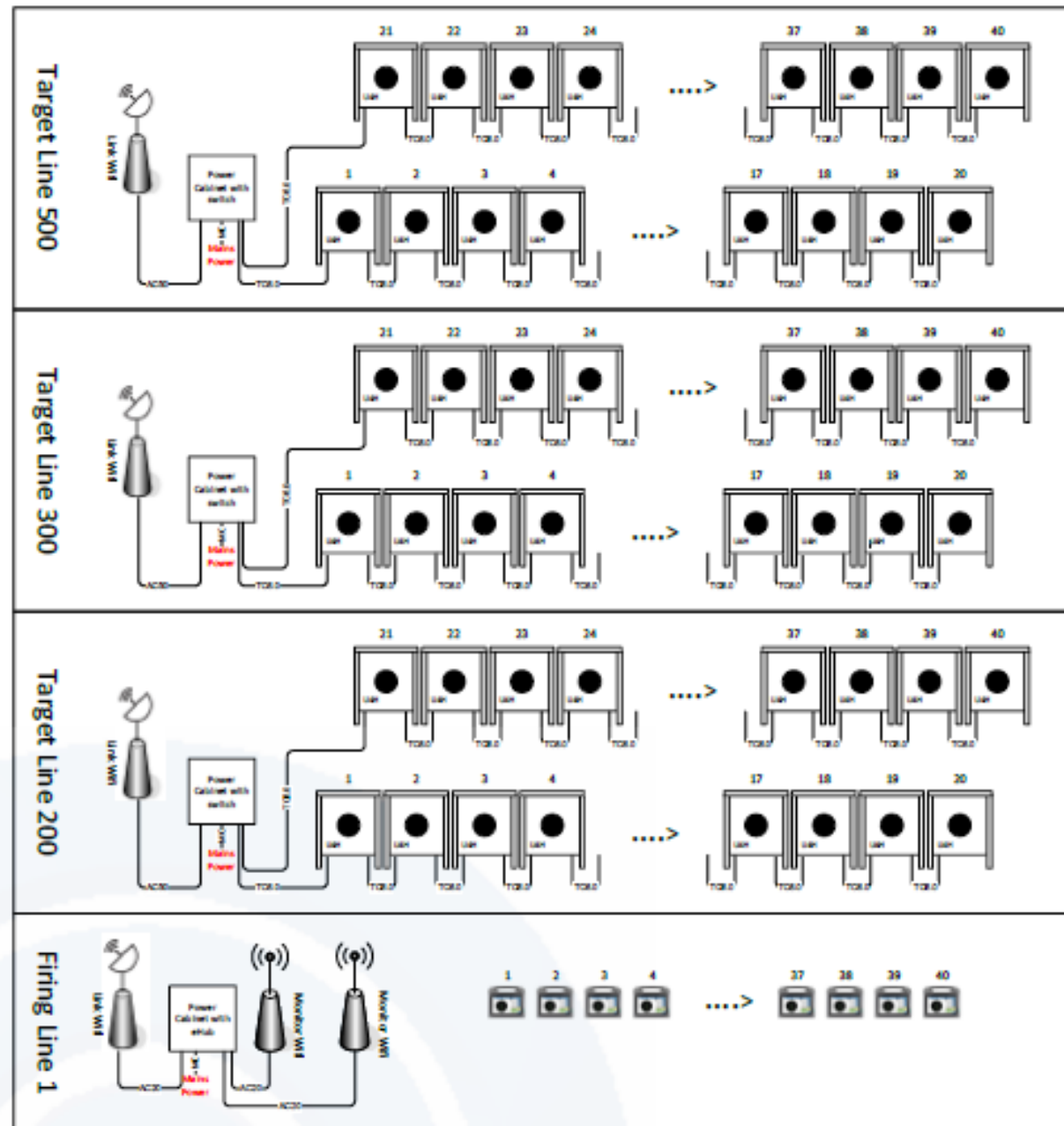
eScore used with Acoustic system



Different configurations



Different configurations



Large Scale Installations



Norwegian National Championship – over 200 targets taking ~500,000 hits/year

Large Scale Installations



Camp Perry, Ohio – 150 targets

Many different target types...



+ many, many more

https://static.helpjuice.com/helpjuice_production/uploads/upload/image/10725/direct/TargetDefinitions.pdf