

**Alles over RNGs (Title in Dutch)**  
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**\*\*\* Question #1 \*\*\***

***“What is it exactly what your company does?”***

Technical Systems Testing (TST) is an internationally recognized Accredited Testing Facility (ATF) offering a full range of testing and consultation services for terrestrial (traditional / land-based) and interactive gaming, wagering, lottery, e-commerce and Information Technology (IT) industries. TST provides fully independent and impartial testing and consultation services to gaming industry Regulators, Operators and Suppliers to ensure that systems comply with manufacturer's specifications, legislative and regulatory requirements and generally-accepted industry standards. This in turn results in systems that are fair, safe, secure, auditable and reliable.

**\*\*\* Question #2 \*\*\***

***“Can you tell us a little more about RNG's? What are they and what do they do?”***

In the gaming industry, a Random Number Generator (RNG) is a system component used for generating game outcomes. There are two basic types of RNGs: software and hardware.

At the heart of every software RNG is an algorithm. Software RNGs are also known as pseudo-RNGs because these algorithms generate outcomes that only *appear* to be random. Some would argue that the pseudo-random behaviour of software RNGs makes them inferior to hardware RNGs. This is a classic misconception. Just because software RNGs are only pseudo-random, doesn't mean they can't do the job. When implemented correctly, software RNGs can be sufficiently random for gaming applications. Conversely, when designed poorly, software RNGs can exhibit a bias or pattern that could potentially allow players to predict the game outcomes.

Hardware RNGs are altogether very different. Hardware RNGs are comprised of a physical hardware device (usually an electronic card that plugs into a computer) complete with special interface software. Hardware RNGs are capable of truly random output. Since hardware RNGs do not depend on an algorithm, they are not subject to the limitations of pseudo-random behaviour. However, there are other issues that must be addressed when using hardware RNGs. For example, since hardware RNGs are comprised of physical hardware devices, they can potentially wear out and break down over time.

Some gaming websites even use a combination of both hardware and software RNGs together.

**\*\*\* Question #3 \*\*\***

***“There is a myth on our forum saying: The eventual outcome of the game depends on how fast or slow you bet and what amount you bet.”***

This is another classic misconception. With either type of RNG (i.e.: software or hardware), as long as it is designed correctly, and subjected to independent testing and verification, there shouldn't be any way to cheat the game – regardless of when you press the play button, how much you bet, or any other factor that clearly shouldn't impact the game fairness.

\*\*\* Question #4 \*\*\*

***“When a game of Texas Holdem is dealt (Online) does the RNG already know what the flop, turn and river is?”***

In most gaming website implementations, the RNG is designed to randomly shuffle the deck and decide the value of any face-down cards, during the initial card dealing, just like in a real game. In addition to more accurately simulating a real-life card game, this also allows the system to store incomplete games in the event of a power failure or similar system crash, thereby providing a mechanism to complete those games upon re-start.

\*\*\* Question #5 \*\*\*

***“Can that be influenced or manipulated in any way?”***

Again, as long as the RNG is designed correctly, and subjected to independent testing and verification, there shouldn't be any way to cheat the game. A properly designed RNG should keep any hidden values secure from all illicit access.

\*\*\* Question #6 \*\*\*

***“Do you consider the online poker world as safe? Are there any exceptions to that?”***

That's a very good question. Unfortunately, there's no easy answer.

In order to better understand the situation, let's first review the regulatory aspect of the gaming industry. Each online gaming website is hosted from a particular gaming jurisdiction. There are a significant number of gaming jurisdictions around the world, each with a unique set of gaming standards and regulatory requirements, and a unique approach to licensing and monitoring the websites under their supervision. These standards and requirements can span a wide range of areas, such as operational policies and procedures, financial controls and technical design specifications. Each gaming jurisdiction also has different approaches when it comes to enforcing their standards and requirements.

For example, most highly-regulated gaming jurisdictions enforce strict requirements for RNGs to ensure that the games are fair, random and non-predictable. Accordingly, players that choose to wager on websites hosted from those jurisdictions can gain a certain degree of assurance that the game outcomes are fair, and that their wins will be paid out correctly. Certain gaming jurisdictions are widely-recognized as having a strong regulatory framework, such as Alderney, the Isle of Man, Vanuatu and Australia, and even promising, relatively newer jurisdictions such as First Cagayan in the Philippines. This list is by no means exhaustive, but it is instead intended to provide a sample of known highly-regulated gaming jurisdictions.

Conversely, players that choose to wager indiscriminately on websites hosted from unregulated or poorly-regulated gaming jurisdictions are subject to the good-will of the website operators, which unfortunately cannot always be relied upon. These operators could be honest or dishonest, but without an appropriately-strict regulatory regime, there's no real way to be certain.

**\*\*\* Question #7 \*\*\***

***“Is there anything players can do to check whether the site they are playing has been tested correctly?”***

Fortunately, this question does have a simple answer: yes! Websites that have undergone independent compliance testing typically display a Certification Letter or equivalent certificate. Locate this certificate, review it carefully, and ask yourself:

- Who is the operator running this website and how well-known are they? Do they have much to lose in the way of reputation? Is the website hosted in a reputable gaming jurisdiction?
- Was the certificate issued by a reputable and fully-independent Accredited Testing Facility (ATF)? Some organizations will claim to be fully independent, but in fact be closely linked to the website operator, thereby creating a serious conflict of interest.
- What exactly was tested, and what were the methods used for testing? Was the RNG tested to rigorous industry standards?
- Were any other elements of the website subjected to testing, such as the games or game payout percentages? The greater the scope of testing, the better.

In summary, players can take steps to increasingly protect themselves by researching their choices carefully. There are a significant number of fair and honest gaming websites available. Unfortunately, there may also be a number of websites run by dishonest or unscrupulous operators. If I could offer some advice, it would be to learn about the different gaming jurisdictions, as well as the different types of regulatory compliance testing that can be applied to a gaming website, and subsequently make a decision based on these facts.

Knowledge is a player’s best defense against the possibility of being taken advantage of!

**Bio**



Mr. Noah Turner is the Chief Technical Officer (CTO) of Technical Systems Testing (TST), an internationally recognized Accredited Testing Facility (ATF) offering evaluation and consultation services for both the land-based (traditional / terrestrial) and Interactive gaming, lottery and Information Technology (IT) industries.

Office: +1 (604) 873-5833  
Email: [nturner@tstglobal.com](mailto:nturner@tstglobal.com)

**OFFICES:**

**Vancouver** – Suite #420, 1367 West Broadway, Vancouver, British Columbia, Canada, V6H 4A7 // **O:** +1 (604) 873-5833 // **F:** +1 (604) 873-1075  
**London** – Swan Centre, Fishers Lane, Chiswick, London, England, United Kingdom, W4 1RX // **O:** +44 (0)2087 474 956 // **F:** +44 (0)2087 427 967  
**Sydney** – Suite #305 / 306, 30 – 40 Harcourt Parade, Rosebery, New South Wales, Australia, 2018 // **O:** +61(2) 9700 7023 // **F:** +61(2) 9700 7024  
**Melbourne** – Level 28, 303 Collins Street, Melbourne, Victoria, Australia, 3000 // **O:** +61 (3) 9678 9095 // **F:** +61 (2) 9700 7024  
**Macau** – Macau Number 39, 17F Central Plaza, 61 Avenida de Almeida Ribeiro, Macau, China // **O:** +853 8291 3992 // **F:** +853 8291 3889