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Szrek₂Solutions

ITHUBA and RNG vendor Szrek2Solutions confirm the validity of the surprising draw results

Since 2016 Szrek2Solutions has provided ITHUBA, the operator of the South African Lottery, with its Trusted Draw™ Random Number Generator (RNG) system for automated operation of the draw games. In line with industry standards and moving with innovation, ITHUBA embarked on moving its lottery draws from the traditional ball machines to digital draws.

On December 1, 2020 surprising draw results raised attention world-wide. The numbers drawn in the December 1st Powerball drawing were: 8, 5, 9, 7, 6, in this order, and the Powerball number was 10. When sorted from lowest to highest, these numbers created a sequence 5, 6, 7, 8, 9 and 10 which raised general suspicion of foul play. These concerns were quickly addressed and the validity of the draw was attested to by ITHUBA and recognized by the South African National Lotteries Commission. The validity of the draw relies on the unique properties of the Trusted Draw™ Random Number Generator (RNG) system, that verifies the integrity of *each and every* draw.

We explain below: (1) how draw integrity is ensured by Szrek's RNG method, (2) the reason for many winners, and (3) the statistics behind draw patterns.

1) Draw integrity: a unique feature of Szrek's patented RNG technology is that it enables verification of the specific draw numbers (US patent # 6,934,846) and detects 100% of draw hardware faults and software fraud. The technology which is based on nonrepudiation also allows for proving the integrity of legitimate, even if surprising, combinations. For each draw, the Trusted Draw™ RNG system creates proof of integrity which is then verified by an independent Trusted Audit™ system. This verification confirms the randomness and authenticity of the draw numbers. Also, the Internal Control System (ICS) automatically verifies with Trusted Audit the draw numbers used by the gaming system, attesting to their validity. The Szrek RNG has been certified over 25 times by numerous independent labs, including Gaming Laboratories International (GLI).

The Powerball draw of December 1st 2020 was verified by ITHUBA Officials and their Independent Auditors using Trusted Audit. Szrek2Solutions also verified the results after the draw had taken place. The draw verified correctly – all draw reports on the draw and audit systems were identical. Such verification allows us to confirm that there were no hardware or software issues and that all the numbers were drawn properly.

“It was verified for its correctness and randomness, so we can warrant the integrity of this draw. Any independent entity, such as a regulator or external auditor, with access to our Trusted Audit technology can verify the integrity and randomness of all draws,” said Irena Szrek, CEO of Szrek2Solutions.

2) Many winners: there were more winners than usual because the winning numbers formed a pattern. People play numbers in patterns more often than any other numbers.

These patterns include consecutive numbers, series, geometrical patterns on the bet slip, birthdays, etc. A normal consequence of the pattern in the winning numbers is that there are more winners.

3) **A Statistical Analysis:** both Powerball and Powerball+ (another draw game with the same matrix) have been played twice a week in SA over a period of a few years. The probability of having a sequence of 5 numbers from 1 to 50 occurring once in a year is approximately 1 in 222 and with the Powerball (1 from 20) occurring as the 6th number in the sequence, the probability is 1 in 13,497. Over six years of playing the two games, these probabilities increase to 1 in 37 and 1 in 2,264, respectively. Note also that there would be a higher probability of the event occurring if we looked at all draw results that formed some type of a pattern that could be deemed 'suspicious' (e.g. if the numbers drawn are 2,4,6,8,10 or 5,10,15,20,25).

The likelihood of draw results forming a pattern should be considered not as a single event, but in historic and geographic context – as an event in a global lottery environment. Over the years, an event like this will occur.

“Unlikely number sequences can and will occur, and recognizing the importance of integrity and transparency, ITHUBA selected an RNG system that enables us to prove the integrity of the draw numbers to our players,” said Busisiwe Msizi, ITHUBA’s spokesperson.

Below are important reference links:

Probability table: <https://szrek.com/ithuba-numbers-have-proof-of-integrity/>

<https://abcnews.go.com/International/20-people-won-south-african-lotto-playing-10/story?id=74514997>

https://twitter.com/SA_NLC/status/1334125711846744064/photo/1

<https://www.nationallottery.co.za/>

About ITHUBA

ITHUBA Holdings Proprietary “(RF), is the official operator of the National Lottery in South Africa. Since taking over the operation of the national lottery in 2015, ITHUBA has been living up to their objective to reinvigorate the National Lottery through optimising the consumer experience, restoring faith and trust in the National Lottery; and showcasing its positive social contribution to society. ITHUBA, proudly rooted in South Africa, is intent on contributing positively and actively to socio-economic development by producing as many millionaires as possible, as well as uplifting communities through various initiatives. ITHUBA is determined to uphold the ethical and efficient operation of the National Lottery, setting the benchmark for Lottery operations in South Africa and beyond.

About Szrek2Solutions

Szrek2Solutions is a leading provider of reliable secure electronic draw systems and high performance RNG solutions for on-line games and e-instants, offering unique RNG solutions with a proof of integrity and its independent verification. Partnering with leading vendors and lotteries, Szrek has deployed its exclusive auditable RNG platform in the US and internationally since 2005 and has an outstanding track record for its exceptional technology and excellent support. Headquartered in Rhode Island, USA, with a European office in Portugal, Szrek's customers include, in addition to ITHUBA, Florida Lottery, IGT Corporation, Iowa Lottery, Loterie Nationale (Luxemburg), Lottomatica SpA (Italy), Texas Lottery, Sisal SpA (Italy), Scientific Games International.