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(21) Application No: 1720763.0

(22) Date of Filing: 13.12.2017

(71) Applicant(s):
Arqit Limited
10 Tythe Close, Flitwick, BEDFORD, MK45 1LE,
United Kingdom

(72) Inventor(s):
Trevor Barker

(74) Agent and/or Address for Service:
Maucher Jenkins
26 Caxton Street, LONDON, SW1H 0RJ,
United Kingdom

(51) INT CL:
H04L 9/08 (2006.01) **H04B 7/185** (2006.01)
H04B 10/70 (2013.01)

(56) Documents Cited:
US 9413470 B **US 5966224 A**
US 20080152147 A1
2011 6th International Conference on Industrial Electronics and Applications (ICIEA), pub. IEEE, US, pp.2480-2485, Skander, A. et al, "Approach of large satellites networks communications based on quantum transmissions"

(58) Field of Search:
INT CL **H04B, H04L**
Other: **EPODOC, WPI, INSPEC, XPI3E, XPIEE**

(54) Title of the Invention: **Quantum protection of telemetry tracking and command links**
Abstract Title: **Encryption of signals sent between a satellite and a ground station using quantum cryptography.**

(57) A control apparatus (100) for a satellite (200) comprises a command generator to generate telemetry, tracking and command (TT&C) instructions for the satellite. The control apparatus further comprises an encryptor to encrypt TT&C instructions using a common quantum encryption key shared with the satellite and a transmitter to transmit the encrypted TT&C instructions to the satellite. A satellite comprises a command and telemetry subsystem to generate TT&C information for the satellite. The satellite further comprises an encryptor to encrypt TT&C instructions using a common quantum encryption key shared with the control apparatus and a transmitter to transmit the encrypted TT&C instructions to the control apparatus. The key generation method may use quantum entanglement. The key may also be used for communications between clients on the ground (300, 400).

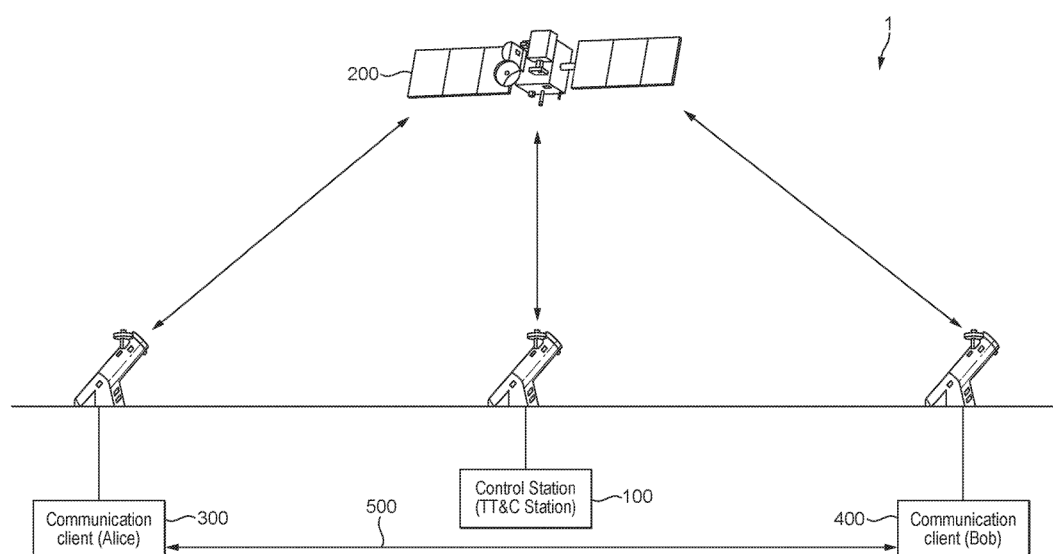


FIG. 1

(21) Application No: 1815040.9

(22) Date of Filing: 14.09.2018

(71) Applicant(s):
Arqit Limited
1st Floor, 3 More London Riverside,
More London Place, SE1 2RE, United Kingdom

(72) Inventor(s):
David Williams

(74) Agent and/or Address for Service:
Dentons UK and Middle East LLP
One Fleet Place, London, EC4M 7WS,
United Kingdom

(51) INT CL:
H04L 29/06 (2006.01) **H04L 12/26** (2006.01)

(56) Documents Cited:
CN 107360206 A **US 20180121909 A1**
US 20180063238 A1

(58) Field of Search:
INT CL **H04L**
Other: **EPODOC, WPI, INSPEC, Patent Fulltext**

(54) Title of the Invention: **Autonomous quality regulation for distributed ledger networks**
Abstract Title: **Selecting trusted third party (TTP) nodes in distributed ledger networks (DLN) using measured performance**

(57) Distributed ledger technology (DLT) TTP nodes can perform various tasks, super-peer, master, miner, jury, notary.
Node performance is measured with test messages. Performance criteria may be latency, uptime, transaction processing speed, reachability, connection speed. Test measurement results are statistically aggregated. Performance may be compared to benchmarks. The TTP selection may be performed by a distinct quality regulation function (QRF). The distributed ledger may be a CORDA type or a blockchain.

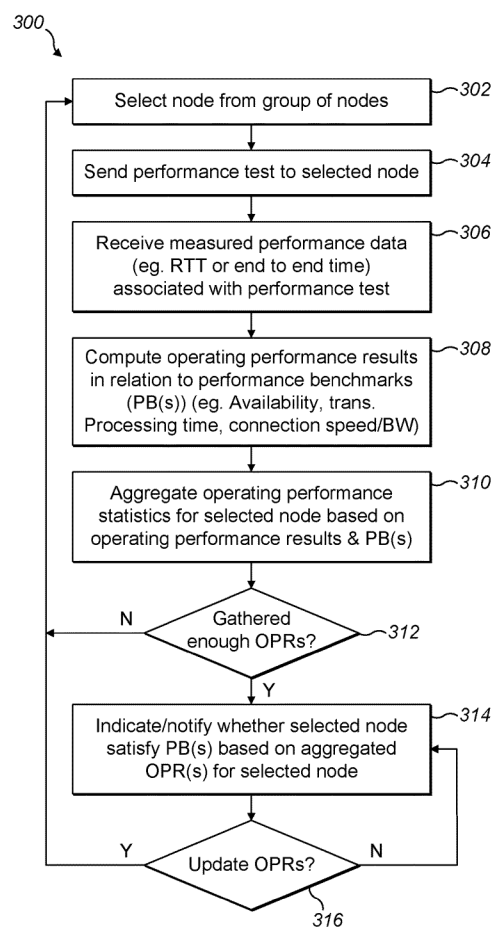


FIG. 3