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| **Title:** | Progress report of the Joint Coordination Activity on Quantum Key Distribution Network (JCA-QKDN)   |
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| **Abstract:** | This TD contains the progress report of the Joint Coordination Activity on Quantum Key Distribution Network (JCA-QKDN).**Actions requested:**1. TSAG is requested to take note of the activities, updates, and planned work of JCA-QKDN
2. TSAG is requested to endorse the continuation of JCA-QKDN in the 2025-2028 Study Period under revised Terms of Reference (see Annex A) which replaces references to Rec. A.1 Clause 5 to Rec. A.18, removes the reference to WTSA Res. 92 and updates the composition of the management team
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The Joint Coordination Activity on Quantum Key Distribution Networks (JCA-QKDN) remains a key coordination mechanism for ITU-T’s quantum-related standardization efforts, ensuring alignment across Study Groups and engagement with external organizations.

In the previous study period, JCA-QKDN facilitated collaboration on QKDN standards, maintained a database of related work, and supported outreach efforts. Four meetings and one workshop were held in support of these efforts:

**Table 1: JCA-QKDN activities in the 2022-2024 Study Period**

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|  | **Report** | **Executive summary** |
| Geneva, 22 March 2023 | [Doc. 18](https://extranet.itu.int/sites/itu-t/jca/qkdn/meetingdocs/JCA-QKDN-018.docx) | [TSAG-TD210](https://www.itu.int/md/T22-TSAG-230530-TD-GEN-0210/en) |
| E-meeting, 8 June 2023 | [Doc. 31](https://extranet.itu.int/sites/itu-t/jca/qkdn/meetingdocs/JCA-QKDN-031.docx) | [TSAG-TD434](https://www.itu.int/md/T22-TSAG-240122-TD-GEN-0434/en) |
| E-meeting, 14 December 2023 | [Doc. 52](https://extranet.itu.int/sites/itu-t/jca/qkdn/meetingdocs/JCA-QKDN-052.docx) |
| Singapore, 17 May 2024NOTE: Meeting and [Workshop on “Insights on QKD & QKDN certification: Recent developments and challenges”](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/2024/0517/Pages/default.aspx) | [Doc. 67](https://extranet.itu.int/sites/itu-t/jca/qkdn/meetingdocs/JCA-QKDN-067.docx) | [TSAG-TD545](https://www.itu.int/md/T22-TSAG-240729-TD-GEN-0545/en) |

JCA-QKDN would like to take this opportunity to express its deep appreciation to Mark McFadden, Vice-chair of JCA-QKDN, who has retired. His dedication and leadership were instrumental in fostering collaboration, advancing ITU-T’s quantum standardization efforts, and contributing to the overall success of JCA-QKDN in the previous study period. His contributions left a lasting impact, and the JCA thanks him for his invaluable service.

The planned activities for 2025 include:

– TBC: Virtual meeting or physical with remote participation co-located with SG13 in July

– *(Tentatively planned)* Meeting in late 2025 or early 2026 in Singapore, held alongside an event on quantum-safe technologies

To enhance visibility and adoption of ITU-T quantum standards, the JCA-QKDN management team is curating a spotlight series on ITU quantum standards, featuring:

– A first video providing a clear and accessible explanation of the standard

– A second video showcasing real-world implementations and industry adoption

JCA-QKDN will also continue maintaining and updating the [quantum information technology standards database](https://www.itu.int/itu-t/landscape/?topic=tx467&group=g&search_text=) to ensure comprehensive coverage of ongoing developments.

JCA-QKDN notes the outcomes from WTSA-24 and their impact on the work of ITU-T Study Groups regarding quantum technologies. With quantum-related work continuing across various Study Groups, the JCA remains committed to coordinating these efforts:

**Table 2: Scope of quantum-related work in the ITU-T Study Groups**

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| **SG** | **Scope** | **Relevant Qs** |
| SG11 | Signalling and control architectures for QKDNs | [Q2/11](https://www.itu.int/net4/ITU-T/lists/q-text.aspx?Group=11&Period=18&QNo=2&Lang=en) |
| SG13 | Quantum networks, covering both networking aspects of QKDN and broader quantum network technologies and quality of service aspects | Qs [6/13](https://www.itu.int/net4/ITU-T/lists/q-text.aspx?Group=13&Period=18&QNo=6&Lang=en) and [16/13](https://www.itu.int/net4/ITU-T/lists/q-text.aspx?Group=13&Period=18&QNo=16&Lang=en) |
| SG15 | Management and use of Quantum Information Technology (QIT) in transport networks as well as network synchronization, timing and deployment requirements for QKDN | Qs [2/15](https://www.itu.int/net4/ITU-T/lists/q-text.aspx?Group=15&Period=18&QNo=2&Lang=en), [7/15](https://www.itu.int/net4/ITU-T/lists/q-text.aspx?Group=15&Period=18&QNo=7&Lang=en), [13/15](https://www.itu.int/net4/ITU-T/lists/q-text.aspx?Group=15&Period=18&QNo=13&Lang=en) and [14/15](https://www.itu.int/net4/ITU-T/lists/q-text.aspx?Group=15&Period=18&QNo=14&Lang=en) |
| SG17 | Security-related standardization for quantum technologies, including QKD and Post-Quantum Cryptography (PQC)NOTE: WTSA-24 adopted an action recognizing the need to promote migration to and utilization of PQC in telecommunication and ICT networks, reinforcing SG17’s role in developing necessary Recommendations, technical reports, and best practices. | Qs [11/17](https://www.itu.int/net4/ITU-T/lists/q-text.aspx?Group=17&Period=18&QNo=11&Lang=en) and [15/17](https://www.itu.int/net4/ITU-T/lists/q-text.aspx?Group=17&Period=18&QNo=15&Lang=en) |

Additionally, JCA-QKDN acknowledges the launch of ISO/IEC JTC3, a new joint technical committee dedicated to quantum technologies, and the importance of strengthening collaboration between ITU-T and ISO/IEC. JCA-QKDN aims to reinforce coordination with key JTC3 groups, including AHG4 on quantum communication, AHG6 on quantum random number generators (QRNGs), AHG7 on quantum enabling technologies, and the relevant work on quantum terminology.

Finally, the designation of 2025 as the International Year of Quantum (IYQ 2025) highlights the need for global cooperation in quantum standardization. JCA-QKDN aligns itself with this mission, supporting IYQ 2025 initiatives to enhance awareness, alignment, and engagement.

**Actions requested:**

1. TSAG is requested to take note of the activities, updates, and planned work of JCA-QKDN
2. TSAG is requested to endorse the continuation of JCA-QKDN in the 2025-2028 Study Period under revised Terms of Reference (see Annex A) which replaces references of Rec. A.1 Clause 5 to Rec. A.18, removes the reference to WTSA Res. 92 and updates the composition of the management team

**Annex A**

**Revised Terms of Reference of the Joint Coordination Activity on Quantum Key Distribution Network (JCA-QKDN)**

**1 Scope**

The scope of JCA-QKDN is coordination of the ITU-T quantum key distribution network (QKDN) standardization work within ITU-T and coordination of the communication with standards development organizations, consortia and forums also working on QKD related standards.

​The JCA operates under the terms of Recommendation ITU-T A.18.

**2 Objectives**

* The JCA-QKDN ensures that the ITU-T QKDN standardization work is progressed in a well-coordinated manner among relevant study groups, in particular, Study Group 11 on protocols and interoperability, Study Group 13 on network architecture and functions, and Study Group 17 on security.
* ​Whenever duplication of effort or planning issues are discovered, the JCA-QKDN will coordinate all activities related to QKDN with relevant study groups and report the results to TSAG. ​
* The JCA-QKDN considers and encourages possibilities of co-operation on QKD related standardization with relevant SDOs such as ISO/IEC JTC1 and JTC3, ETSI, IEEE, IETF/IRTF, CCSA, CEN-CENELEC FG QT, IEC TC 86, etc.​
* The JCA-QKDN analyses the work of standards development organizations, consortia and forums for use in its coordination function and as part of its report provides information on this work for use by the relevant study groups in planning their work.​
* In order to avoid duplication of work and assist in coordinating the work of the study groups, the JCA-QKDN acts as a point of contact within ITU-T and with other standards development organizations, consortia and forums working on QKD related standards.
* The JCA-QKDN maintains the SG13 roadmap for QKDN standardization which addresses on-going and published specifications from ITU, other relevant standard development organization, consortia and forums.
* In carrying out the internal coordinating role, participants in the JCA-QKDN will include representatives of relevant ITU-T study groups and other ITU groups.​
* In carrying out the external collaboration role, representatives from other relevant standards development organizations, regional/national organizations, consortia and forums shall be invited to join the JCA-QKDN.

**3 Participation**

​Participation is open to official representatives of all ITU-T SGs and TSAG and all ITU-T SG secretariat. Other ITU groups and relevant external bodies, standardization organizations in particular, may be invited to appoint a representative to join the group.

**4 Administrative support**

ITU-T Telecommunications Standardization Bureau (TSB) will provide secretariat and facilities support for JCA-QKDN within available resource limits.

**5 Meetings**

The JCA-QKDN works electronically using teleconferences and with face-to-face meetings as needed. Meetings will be held as determined by the JCA-QKDN and will be announced to its participants by the JCA e-mail reflector and posted on the ITU-T website. JCA-QKDN will meet during TSAG meeting if it needs to.

**6 Parent group and progress reports**

The JCA-QKDN will report to TSAG at its meetings. An executive summary will be sent to TSAG after each JCA-QKDN meeting. Progress reports and proposals will be sent to relevant study groups as necessary, in accordance with Recommendation ITU-T A.18.

**7 Leadership**

* **Chair:** Mr Junsen Lai, China ​Academy of Information and Communications Technology (CAICT)​, China
* **Vice-chair:** ​ Mr Hao Qin, National University of Singapore

**8 Other contacts**

JCA-QKDN secretariat (quantum@itu.int).

**9 Lifetime**

See Recommendation ITU-T A.18.

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