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| **Title:** | | | Minutes of the third TSAG adhoc session on Quantum | | |
| **Purpose:** | | | Information | | |
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| **Keywords:** | Minutes; 3rd Adhoc Quantum; |
| **Abstract:** | This document carries the minutes of the third adhoc session on Quantum. It focused on reviewing and revising the new proposed ToR for a Focus Group and was debated. |

# Introduction

This adhoc session was scheduled on Thursday 13th of December at the ITU from 8:15 to 9:30 and chaired by M. Arnaud Taddei with the support from Mrs. Xiaoya Yang, from the ITU-T Secretariat.

The delayed beginning was due to late reception of new documents (early morning of 13 Dec) which are indispensable input to the ad hoc discussion today, which are

* [TD424R1](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-181210-TD-GEN-0424) –revision to minutes of 1st adhoc session,
* [TD433](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-181210-TD-GEN-0433) – revised FG ToR,
* [TD434](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-181210-TD-GEN-0434) – minutes of 2nd adhoc session,
* [TD435](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-181210-TD-GEN-0435) – agenda of 3rd adhoc session.

# Minutes

## Chairman opening words

Chairman observed a gap between two sides and currently no consensus. He mentioned that significant offline consultation had been conducted among participants, interested parties and appreciated very much those who had conversations with him.

Especially he appreciated effort of Chinese and Japanese delegates to revise FG ToR to avoid duplicating work with ITU SGs and invited China to explain TD433 – revised FG ToR.

As well Chairman produced an incomplete minutes of the 2nd session in [TD434](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-181210-TD-GEN-0434) with the section ‘Questions and Answers’ still missing due to lack of time as his effort to provide in writing the answers to the questionnaire that China produced which was read on the floor in the 2nd session but not yet seen in written by delegates.

As there is still a potential for an agreement and for sake of efficiency of this adhoc discussion, as well as to avoid any misunderstanding, Chairman proposed to review the new ToR without any assumption the principle of a FG was agreed.

Finally he explained again that there was an important requirement for coordination and mentioned the possibility for as JCA.

## Approval of this agenda

Canada noted that the documents were still not published and TSB asked for more time.

Canada explained that a JCA was a possibility and TSAG can create JCAs

The agenda in TD435 was approved.

## Identification of documents pertaining to this session

The following new documents were identified

* Minutes of the second adhoc session on Quantum [TD434](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-181210-TD-GEN-0434)
* New revised FG ToR [TD433](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-181210-TD-GEN-0433)

Noting that [TD434](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-181210-TD-GEN-0434) will be revised to include the missing Q&A section

## Review of new proposed FG ToR and Draf edition

China highlighted changes in FG ToR to

* Emphasize the intention of FG is to accelerate ongoing and future work in SGs.
* Revised FG scope of QKD network (2nd task) with Clarification on what are ‘out of the FG scope’.
* Enhanced clarification of FG scope on QIT impact on networks (1st task) and QIN evolution (3rd task)

## Questions and Discussions

### Question 1 – SK Telecom

asked for explanation:

1. how FG accelerate work in SGs;
2. co-fiber transmission is in the scope of SG15/SG13;
3. Quantum relay = quantum key reply?

**Answer from China** – quantum relay is beyond just quantum key reply

### Question 2 - Canada

with TD433, sees more overlap with ITU-T existing work and scope, e.g, FG-network2030 also works on ‘teleportation’

**Answer from China** – ‘QIT impact on networks’ is different from ‘future network’.

**TSB (Reinhard)**:  ‘teleportation’ used in FG-network2030 is different from ‘quantum teleportation’.

### Question 3 - SG17 Chair

SG17 discussed in Sept 2018 of a new Q on quantum safe communication without agreement, therefore SG17 will discuss establishment of this new Q again in SG17 next meeting in Jan 2018. SG13 and SG17 will study all QKD network related subjects now and in the future, including use case of QKD network (which is still in the scope of FG ToR), for example, SG17 has already an ongoing work item on usage of QSC for 5G, led by China (Mobile).

**Answer from China**: implementation of QKD network is a specific subject.

### Question 4 – Switzerland

no need for further gap analysis on QKD network from FG. Why further delay than just do standardization in SG13 and SG17?

**Answer from China:** Since this subject cuts across multiple SGs, if each individual SG works on their own, we might miss the complete/broader picture.

### Question 5 - UK

1. FG is to identify gaps/new subjects which are not yet covered by ITU-T. Now we have work on QKD network in SGs already;
2. Text in TD433 shows there are still overlap/duplication.;
3. What is needed is coordination, therefore UK proposes a JCA
4. SG2 chairman notes the requirements on operational aspects where SG2 could standardize these aspects and may get SG2 to join this coordination.

### Question 6 – Switzerland

‘coordination’ is written in Recommendation ITU-T A.7, but for ‘coordination with parent group’. FG cannot coordinate SGs.

### Question 7 – Egypt

convinced FG is useful. Concern on duplication with SG could be resolved by revising the ToR further

### Question 8 – US

QIN is still scientific research; need time to digest TD433 revised ToR with consultation to experts back home. Is ITU-T a SDO or a research institute?

### Question 9 – Australia

how a FG in next 1-2 years to study standardization for a future technology which will not ready in next 10 years? Also need time to check carefully the revised ToR

### Question 10 – Canada

all work proposed for FG could be progressed in SGs. Bringing in contributions to advance the SG work is the best solution.

### Question 11 – Germany

support a JCA + offers the idea of a workshops that China could run. Any other tools in addition?

## Meeting agreement (or not) on establishement of a Focus Group

This session did not reach this agenda item.

## Conclusion and agenda for potential 4th adhoc

Chairman suggested to have a new round of consultations and will propose a new agenda.

As well Chairman noted a few ‘parking lots’ items to reflect on later

* SK Telecom point that 2c) ‘co-fiber transmission’ can be interpreted as the actual tasks for SG13
* SG2 Chairman recognize the operational aspects of QKD relevant to SG2 and therefore potential involvement of SG2 on QKD to offer a chance to standardize operational aspects
* Germany proposal to, rather than a FG, offer a chance for China to run a Workshop
* SG17 Chairman reminder of the SG17 ‘PQC for 5G’ work item from China Mobile
* An issue of understanding on FG-2030 charter regarding mulit-type teleportation which seems to need a level of clarification

## Any Other Business

None

## Closing

Meeting closed in time at 9:30

# Chairman’s Analysis

With this 3rd adhoc session, the change of the revised ToR created more concerns than expected and the gap between the two sides increased.

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