

# Evaluations on ISAC\_ARC Timeline

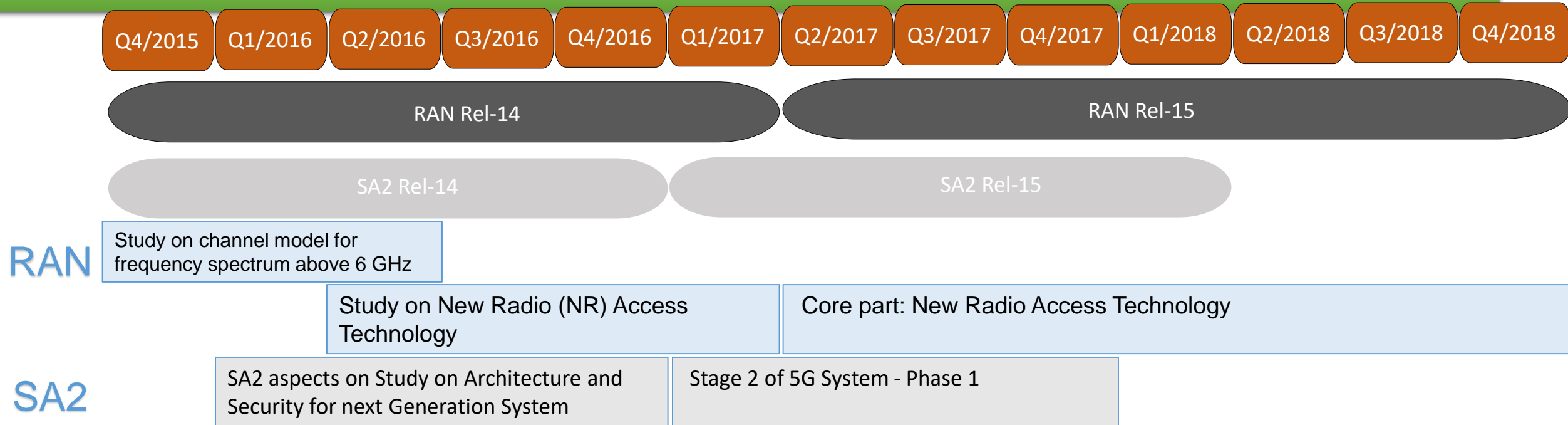
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# Background

- All the WTs are technically stable and in a good shape.
- Major open issues
  - Due to RAN dependency, especially the demand of channel modeling study for sensing, the time schedule of the SA2 SID has to be based on RAN coordination
  - Whether and how to document normative work in the SID
- Since the start of 5G work in 3GPP, 2 channel modeling studies have been identified
  - 5G NR
  - Physical Layer Enhancements for NR URLLC
- This DP attempts to evaluate the time schedule of the stage 2 work for ISAC by referring to how the timelines of “5G NR” and “Physical Layer Enhancements for NR URLLC” were managed.



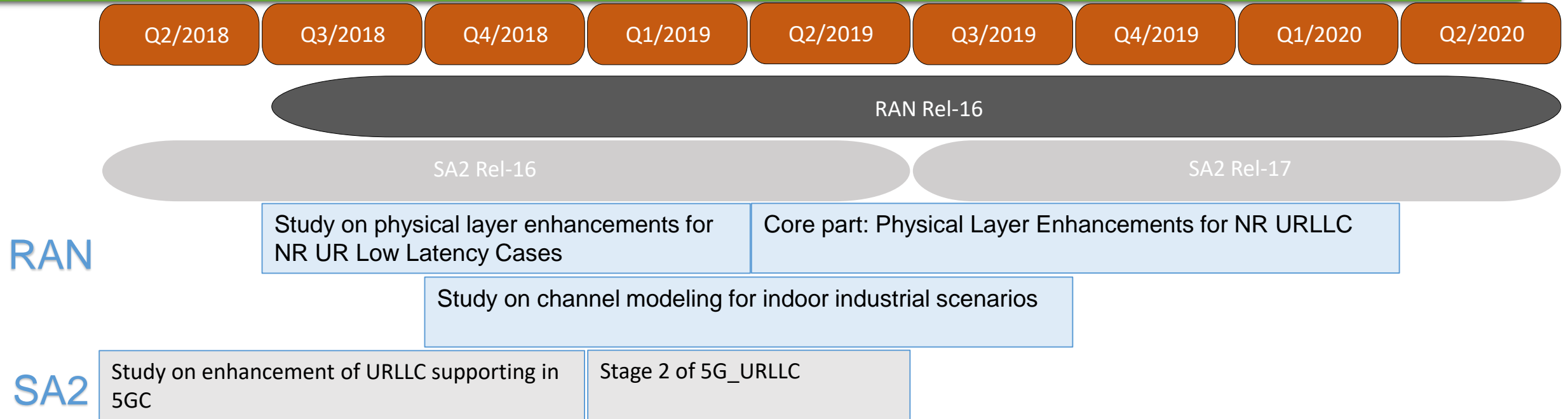
# 5G NR Timeline



## Observations:

- RAN Channel model study can be completed within 3Q
- RAN technical study can take place earlier than the completion of channel model study
- SA2 technical study can take place earlier than RAN technical study (1Q after the start of RAN channel model study)
- SA2 technical study can be completed earlier than RAN technical study
- SA2 technical study and technical specification can be spread over 2 releases

# 5G\_URLLC timeline



## Observations:

- RAN Channel model study can be completed within 4Q
- RAN technical study can take place earlier than the channel model study
- SA2 technical study can take place earlier than RAN channel model study and technical study
- SA2 technical study can be completed earlier than RAN technical study
- SA2 technical study and technical specification can be completed within 1 release

# ISAC status in RAN prior to RAN#102

## RAN R19 Package: RAN1-led Projects

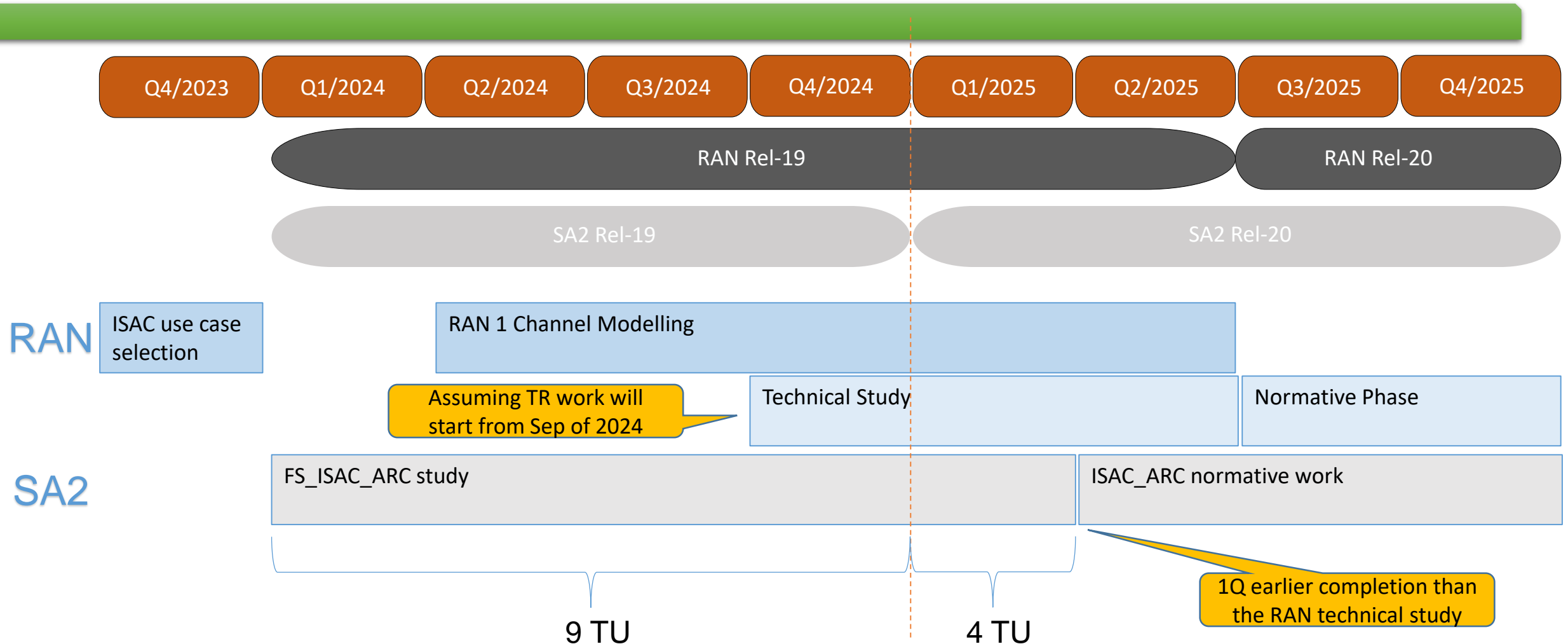
Project	TU estimate
AI/ML - Air Interface	~4 TUs
NR-MIMO Evolution	~2.5 TUs in 1 <sup>st</sup> half, ~2TUs in the 2 <sup>nd</sup> half
Evolution of duplex operation	~2 TUs
Ambient IoT	~3.5 TUs (TUs budgeted for the entire release, target 12-month for SI completion, check in Dec'24 for conversion to WI or if necessary, continuation of SI)
Network energy savings	~2 TUs
Low power WUS/WUR	~1.5 TUs
ISAC	SI only, starting from 2Q'24, ~1 TU for 15 months. Focusing on channel model; check in Sept'24 for possibly additional study beyond channel model
Exploring study in new spectrum (7-24GHz)	SI only, starting from 2Q'24, ~1 TU for 15 months for channel model

Legend - XX: WI; XX: SI only; XX: SI followed by WI or if necessary, continuation

### Observations:

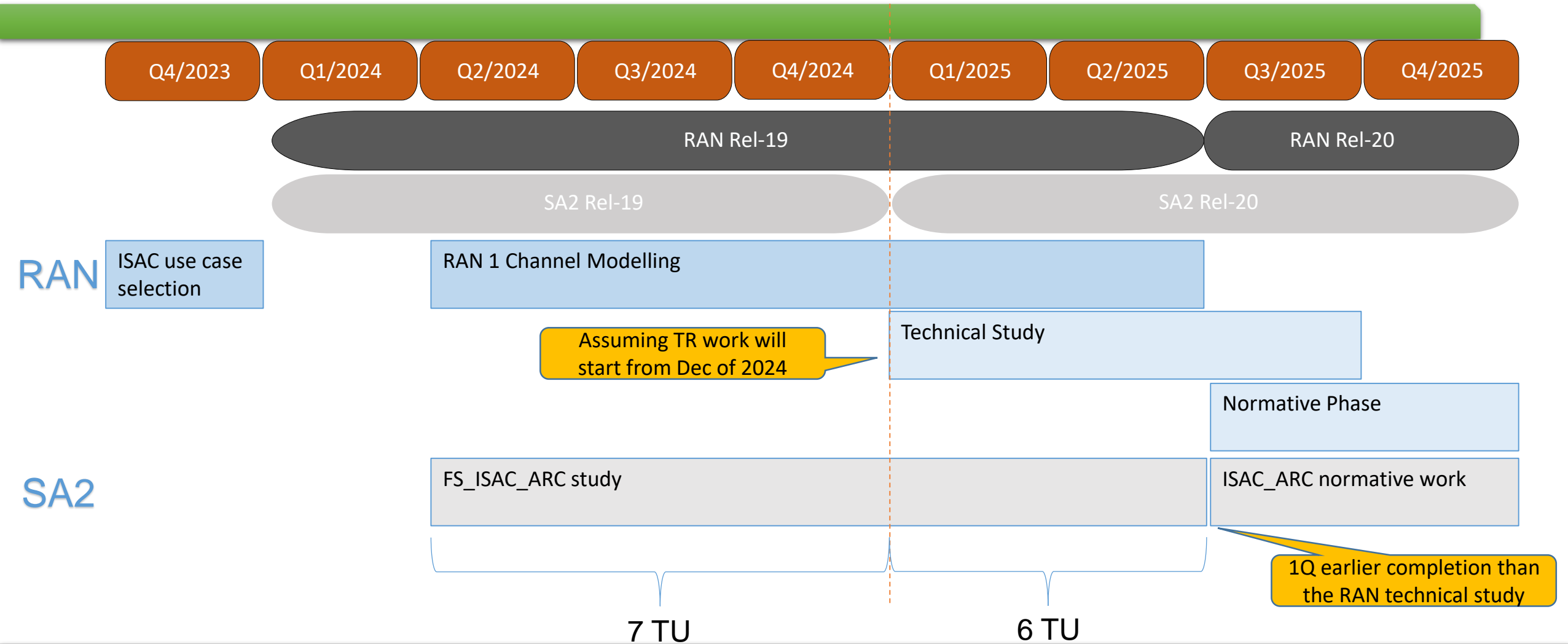
- RAN ISAC Channel model study will start from Q2 of 2024 for 15 months
- It will be checked in Sep. of 2024 to determine if additional study beyond channel model can be considered

# Proposed FS\_ISAC\_ARC timeline (Option 1)

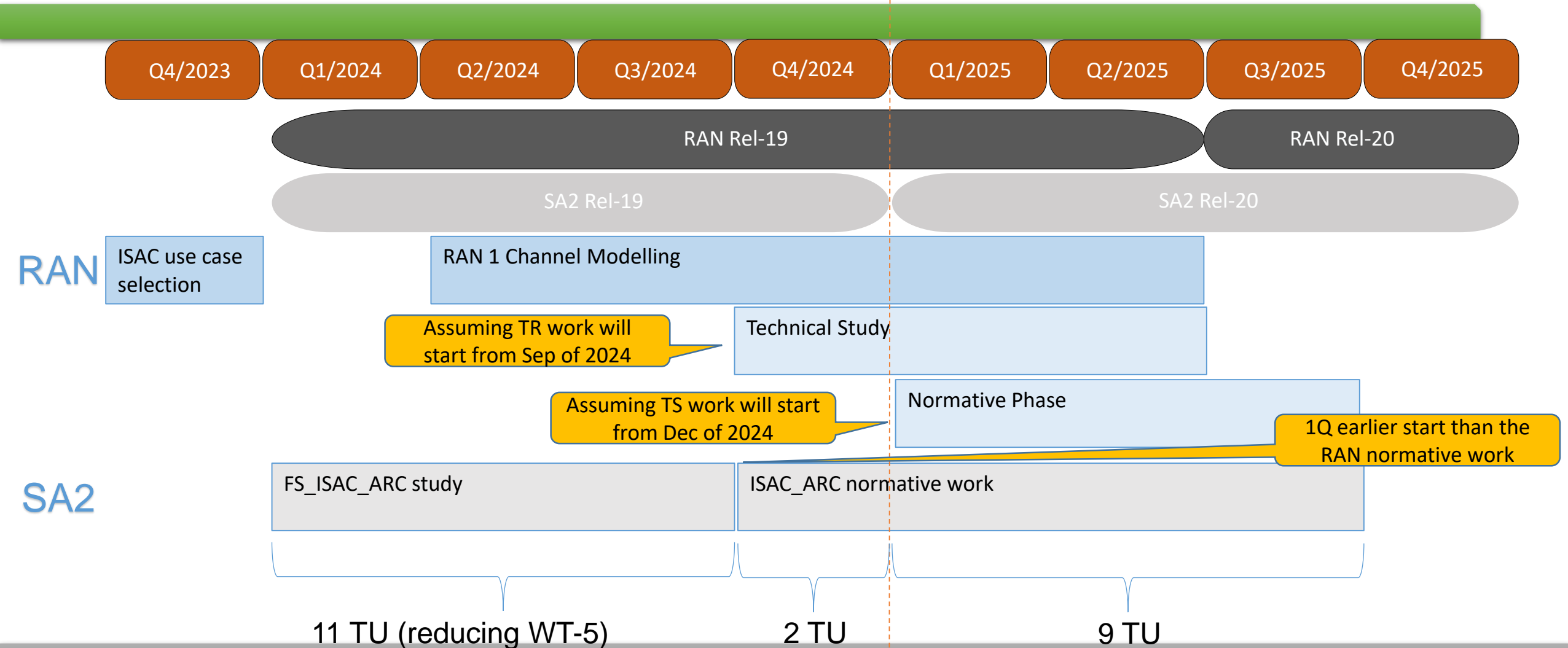




# Proposed FS\_ISAC\_ARC timeline (Option 2)



# Proposed FS\_ISAC\_ARC timeline (Option 3)





# Proposed way fwd

- It is proposed to adopt Option 1: 9 TUs in R19 for the study
  - Since at most 2 TUs are assigned for one topic per meeting, the 9 TUs can be spread over 7 meetings in 2024

## TU allocation examples

Example	SA2#160 Ad hoc-e	SA2#161	SA2#162	SA2#163	SA2#164	SA2#165	SA2#166
Example A	1	1	1	1	1	2	2
Example B	0	1	1	1	2	2	2
Example C	0	0	1	2	2	2	2