SLS C&S Working Group
Minutes of the Meeting

The C&S WG held a progress meeting in April 2025 to anticipate actions for the upcoming CCSDS Spring 2025 meeting, scheduled for June.

1 C&S PROGRESS MEETING MINUTES

- **Status of activities**
  - status of activities, including AI list, was reviewed and updated as reported in the next pages.

- **Link Budget digital format (LBDF)**
  - ESA provided draft OB for the LBDF for requesting WG review;
  - WG agreed to have the review in the May period.

- **AoB:**
  - C&S chair informs that will be unable to attend CCSDS Spring 2025 meeting, because of the ESA limited budget. C&S chair will coordinate with deputy chair (K. Andrews/NASA) and SLP chair (G. Kazz/NASA) for ensuring that meetings can be held normally;
  - WG showed interest about extending proximity links to Ka-Band. As way forward,
    - CCSDS member agencies are invited to submit inputs for June meeting,
    - If activities go forward, WG agreed to have a dedicated project, for not blocking the Agency review of Proximity-1 books with the S-Band extension.

2 C&S WG STATUS

This section provides an overview of C&S activities.

2.1 Projects

Currently C&S WG is working on the following projects:
- *TM synchronization and coding – new channel interleaver for Turbo codes*
- *Proximity-1 extension*
- *Slicing of Transfer Frames*
- *Link Budget Digital Format (LBDF).*

and has one project proposal on hold (due to limited manpower):
- *VCM Greenbook.*

2.2 Resolutions

The WG had in Fall 2024 two resolutions:
- **RES#1**, to send Pink Sheets of 131.0-B for Agency Review;
- **RES#2**, technical corrigendum for byte alignment in 211.2-B-3.

Both are blocked due to the CCSDS pending nomination of new editor.

2.3 Action Items status

AIs list was reviewed. Latest status is reported in Annex.

ANNEX 1: ACTION ITEM LIST

Open action items are listed in the table below.
AIs closed during this meeting are cancelled out in the table below, and changes are tracked in red.

Latest version of AI list can be found on CWE (private folder, requires login): https://tinyurl.com/CCSDSAIs

AI#	Action	Actionee	Due date	Status	Status update
AI_23_08	Provide an update of 130.1-G (TM GB), in preparation of 2025 reconfirmation, for including the following: • Use of TM codes in Ground-to-space links; • Compatibility with USLP; • 17-cell randomizer; • Turbo channel interleaver; • Transfer frame slicing. Book captain: J. Quintanilla/ESA	J. Quintanilla/ESA, A. Modenini/ESA, N. Maturo/ESA, K. Andrews/NASA	Fall 2025	Open	Discussion can start at Spring, with a presentation
AI_23_13	Review draft VCM GB ToC and provide feedback to C&S chair on whether to proceed with development of the GB NOTE: during Spring 2024 project was decided to be put on-hold, and action kept open for Fall 2025.	All	Fall 2025	Open	No updates, to recheck at Fall 2025 if feasible having the project
AI_24_02	To provide Draft Yellow Book for the two prototypes of the Turbo channel interleaver	J. Quintanilla	Spring 2025	Open	Draft expected at Spring meeting

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AI_24_03	ESA/NASA to: • cross check results about CLTU termination performance (with tail and idle sequence) for identifying the reason of the discrepancy between the two analyses • in case issue is confirmed, to check if also LDPC(256,512) has same problematic	K. Andrews A. Modenini N. Maturo	Spring 2025	Open	K. Andrews/NASA and N. Maturo/ESA target to present results on the LDPC issue. Then at Spring 2025 it can be discussed, how to tackle the possible issue on the LDPC TC rejection floor.
AI_24_17	To provide a proposal for including PN ranging parameters in the Proxy-1 RFM Blue Book (if feasible at current status of PN ranging activities)	D. Lee S. Rodriguez	Spring 2025	Open	an update for the prox-1 directive with ranging was distributed in SLP WG. This will be distributed after meeting also to C&S/RFM WGs. RFM prox-1 draft is expected to be provided at Spring meeting.
AI_24_18	To update draft pink sheets of Proxy-1 RFM/CS with the following: • Add default parameters for hailing (including UHF), by setting MI=pi/3 rad-pk (both) and 8 ksps uncoded (for UHF); • To enforce 255-bit randomizer; • To enforce filtering for Bi-phase-L for S-Band in all cases (including hailing) • To add figure for clarifying '1' and '0' voltage transitions; • to remove MI 0.2 rad-pk, and add MI 0 rad-pk, in the list of S-Band MIs; • to increase S-Band max sps to 4096 ksps • to add note about issues in synchronization at low rate also for UHF (as done for S-Band)	N. Maturo	15th December 2024	Proposed for closure	Drafts with the implemented changes will be shared after meeting.

AI_24_19	To prepare technical corrigendum for 211.2-B-3 for having byte alignment, and send to SLS AD	A. Modenini	2nd December 2024	Closed	Resolution is pending publication

ANNEX 2: LIST OF PARTICIPANTS

Name	Affiliation
Andrea Modenini	ESA
Brice Dellandrea	ESA
Dennis Lee	NASA
Greg Kazz	NASA
Jean-Luc Issler	CNES
Jorge Quintanilla	ESA
Kenneth Andrews	NASA
Marie Vialard	CNES
Matt Cosby	UKSA
Mazen Shihabi	NASA
Nicola Maturo	ESA
Shannon Rodriguez	NASA
Stefano Petri	ESA
Victor Sank	NASA
Wai Fong	NASA
Wing-Tsz Lee	NASA