CCSDS SLS-SLP WG Meeting Minutes

Spring 2022 Virtual Meeting

May 9, 2022

7 AM – 9:30 AM PDT

1. Attendees: Ignacio Aguilar-Sanchez (ESA), Greg Kazz (NASA), Matt Cosby (UKSA), Stehan Veit (DLR), Amanuel Geda (DLR), Gilles Moury (CNES), Tim Pham (NASA), Ken Andrews (NASA), Faramaz Daviarian (NASA), Marco Rovatti (ESA)
2. All the files mentioned in these meeting minutes can be found on the SLP WG CWE under the following URL: <https://cwe.ccsds.org/sls/docs/Forms/AllItems.aspx?RootFolder=%2Fsls%2Fdocs%2FSLS%2DSLP%2FMeeting%20Materials%2F2022%2FSpring&FolderCTID=0x012000439B56FF51847E41B5728F9730D7B55F&View=%7BAE8FB44C%2DE80A%2D42CF%2D8558%2DFB495ABB675F%7D>
3. The Two technical corrigenda were presented by Matt Cosby (UKSA) regarding CCSDS 732.1-B Annex C (Relationship of Prox-1 to USLP Transfer Frames). Both changes were accepted by the WG, but since the UKSA team doing the USLP implementation wasn’t finished implementing it, the WG agreed to keep these changes on hold to ensure a complete review of the specification.
4. What is the path forward with the the *Overview of Space Comm Protocols (OSCP) Green Book (OSCP)* (130.0)?

The OSCP GB was placed on hold until clarifications could be made to the overview figure 2-1, and security protocols could be addressed across the CCSDS protocol stack. Working with both the SEA area director (AD) and our SLS AD, the SLP WG chair was able to modify that figure and include the security green, magenta, and blue book references. As a result, a resolution was drafted and sent to the SLS AD for publication of the new version 4 of 130.0-G.

1. Although not presented at this meeting (presented at the Joint C&S- SLP WG meeting) the changes that we discussed at the last Spring meeting concerning the AOS Transfer Frame Header Error Control Field achieved consensus and will result in a resolution to publish an updated version of the AOS Space Data Link Protocol Blue book i.e., CCSDS 732.0-B. the following provides some background regarding the changes:

This specification requires updating, because it lacked some required technical content such as how much virtual fill needs to be applied, the value of the virtual fill, and where to apply it i.e., at the beginning or end. Since ESA and DLR have missions that currently use this field, CCSDS cannot remove this text. Consensus was that the text needs to be improved and inform the user that over time this capability is planned to be made obsolete. Ken Andrews from the C&S WG provided the improved text to 732.0 (AOS Space Data Link Protocol).

1. Use of Proximity-1 at S-band at the Moon. Faramaz Davarian spoke to the need from Industry to expand the current Proximity-1 specification to include more efficient modulation types (e.g., GMSK) than the current Proximity-1 Physical layer, as well as more efficient coding (e.g., rate 2/3 LDPC), when operating at S-band and potentially in the future at Ka-band. Faramaz’s presentation is found in the collection mentioned in section 2 of these MoM. Faramaz made the same presentation at the joint SLP/C&S WG meeting as well. Some of the concerns that came up during the SLP WG meeting were: 1) [Ignacio Sanchez-Aguilar] Are there any frequency/channelization plans existing for this new S-band initiative ? Faramaz answered that for the initial start at S-band, only one channel is planned to be used for both hailing and working (data exchange) channels; the 2nd generation would implement separate hailing and working channels.

Matt Cosby pointed out that it is commercial companies that are driving the technology expansion at the moon and that there is a great need for coordination between these companies and their respective space agencies. The question was raised by Gilles Moury if CCSDS could provide a forum for this coordination along with the IOAG. Greg Kazz pointed out the need for a common set of Proximity-1 directives for UHF, S-band, and Ka-band. Also exactly how the 3 Proximity-1 blue books need to be modified to accommodate the new information to be used at S-band and eventually Ka-band, will need to be thought through. It is important to keep in mind that the Proximity-1 Space Data Link Protocol is agnostic to frequency band. However the directive set would require updates for frequency bands, modulation and coding types, and data rates. Minimum anticipated changes in CCSDS 211.0-B-6: Paragraphs B1.2.4 (extend data encoding types), B1.4.6.4 (extend nominal data rates), B1.7.11(extend Set PL Extension data rates),  B1.4.4 will need to be modified to account for the rate 2/3 LDPC.  Also, the Transmitter Modulation (B1.2.5) and Receiver Modulation (B1.4.5) parameters in the directives most likely will need to be changed to include GMSK and filtered OQPSK.

1. Greg Kazz also presented the current status of the “Packet Protocols” GB. It would include the concepts and rationale for both the Encapsulation Protocol and the Space Packet Protocol. An existing 130.3 draft SPP Green book was circulated to the WG. This draft document contains text both from an implementer and from a user point of view.

ACTION ITEM: Each WG member is asked to review this draft Packet Protocol GB, and provide their comments and edits within the file to Greg Kazz by July 9, 2022. This document with the date of March 1, 2022 in the filename can be found at: <https://cwe.ccsds.org/sls/docs/Forms/AllItems.aspx?RootFolder=%2Fsls%2Fdocs%2FSLS%2DSLP%2FMeeting%20Materials%2F2022%2FSpring%2FPacket%20Protocols%20GB&FolderCTID=0x012000439B56FF51847E41B5728F9730D7B55F&View=%7BAE8FB44C%2DE80A%2D42CF%2D8558%2DFB495ABB675F%7D>

1. Resolutions requested at this meeting
2. Update to 732.0-B (AOS Space Data Link Protocol) for update to FHEC field (see item 5 above).
3. Issue Version 4 of 130.0-G, OSCP GB (See item 4**)**
4. Next meeting– the Fall 2022 technical meetings are scheduled to be held in Toulouse, FR from Oct. 17 through Oct. 21, 2022, for 5 days. Please see <https://public.ccsds.org/meetings/default.aspx> for more details as they appear. However, due to the COVID-19 pandemic, that may change. Please stay tuned to the CCSDS website for updates.

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